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MONTHLY REPORT

OF THE

DEPARTMENT OF AGRICULTURE

FOR

MAY AND JUNE.

1871.



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# MONTHLY REPORT.

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DEPARTMENT OF AGRICULTURE, STATISTICAL DIVISION,  
*Washington, D. C., June 20, 1871.*

SIR: I present herewith for publication a condensed statement of the acreage and condition of the growing crops, together with a variety of extracts from the correspondence of the Department; also, articles on beet-sugar manufacture; on the climate of Santa Barbara; temperature and rain-fall of certain stations in northeastern Ohio; list of market prices of farm products; agriculture in Italy; the game laws of Prussia; scientific notes; meteorological tables, and notes on the weather, &c.

J. R. DODGE,  
*Statistician.*

Hon. HORACE CAPRON,  
*Commissioner.*

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## CONDITION OF THE CROPS IN JUNE.

The meteorological peculiarity of the season has been the recurrence of severe frosts in the interior areas, the Ohio and Mississippi Valleys. In the former the severest occurred April 19 to 23, killing fruits and injuring grain crops; and the absence of rain is noted throughout this region, in some places for a period of eight weeks together; but showers in the latter part of May have been quite general, and exceedingly timely and refreshing. West of the Mississippi heavy frosts occurred early in April, one on the 13th destroying much fruit in Kansas. In the Gulf Coast States, on the contrary, rain was abundant both in April and May, attended with a low temperature as in the section north of them.

While the planting and germinating season was generally cool, it was commenced at an early date, being preceded by a spell of genial and sunny weather; the temperature of the soil has not been reduced by evaporation of heavy falls of rain; consequently the crops of all but the cotton States are more advanced than usual, and the grain harvests are commencing a week, in some places ten days, earlier than their customary date.

### WHEAT.

The wheat acreage of the country has been increased. The averages, as carefully calculated from our returns, in comparison with the breadth sown last year, show an increase in the following States: New York, 1 per cent.; New Jersey, 2; Ohio, 6; Michigan, 4. Wisconsin, 4; Minnesota, 10; Iowa, 15; Kansas, 30; Nebraska, 25; Oregon, 3. A small decrease appears in the New England States; in Pennsylvania, a reduction

of 2 per cent.; Maryland, 3; Kentucky, 2; Indiana, 2; Mississippi, 2; and South Carolina, 8. The average increase in acreage is estimated at 4 per cent., or about three-fourths of a million acres.

The condition of the crop in Massachusetts is placed at 14 per cent. below an average; Connecticut, 6; New York, 2; Virginia, 8; North Carolina, 18; South Carolina, 27; Georgia, 25; Alabama, 23; Mississippi, 4; Texas, 14; Arkansas, 13; Tennessee, 26; Kentucky, 20; Indiana, 3; California, 42. The States reporting superior condition are: Delaware, 2 per cent. above average; Maryland, 2; West Virginia, 4; Ohio, 7; Michigan, 6; Wisconsin, 6; Minnesota, 2; Illinois, 3; Iowa, 8; Missouri, 4; Kansas, 9; Nebraska, 6; Oregon, 4.

The wheat plant in New England is suffering from drought in the sandy and less elevated sections. Spring grain has been injured from this cause in the mountain sections of Western Massachusetts.

Winter wheat is in fine condition throughout New York. Our correspondent in Livingston County says it looks better than he has seen it in the past forty-five years, though the spring grain is suffering from drought, particularly on uplands. In Erie County, spring wheat has had an unprecedented growth in the last ten days of May. In Onondaga wheat is beginning to head, and in some places is "lodging" badly. The growth of spring grains has been retarded in Clinton by a wet and cold spring. Recent rains have greatly improved the crop in Seneca. Drought has been severe in several sections, as in Albany, Livingston, Suffolk, and other counties, causing injury to spring grains, but winter wheat endures it well. A fully average condition is reported throughout the Middle States. There has rarely been a better prospect for wheat in New Jersey, Ocean County furnishing the only unfavorable report. In Westmoreland, Pennsylvania, it is stated that very heavy showers have washed the pollen from the blooming wheat, and a reduction is feared in consequence.

The reports from Maryland are equally favorable as to average condition. A few drawbacks are reported from the Hessian fly in Talbot, Queen Anne, and St. Mary's. In Talbot the joint-worm is troublesome. While the injury in St. Mary's, from the rust and fly, is severe, the superior condition of the crop will compensate for this deficit and place the prospective yield above the average. The following items are extracted from the returns:

*Cecil County, Md.*—Wheat, early in the spring, was uncommonly promising, but the greater part of it was struck with an unusually early rust. In whole fields the leaves turned yellow, and persons passing through them had the lower part of their garments stained a brown color. The excessively hot weather in April, followed by heavy rains and cool weather in the last of April and the first of May, probably caused this. At present crops of all kinds are suffering from drought.

*Queen Anne County, Md.*—The Hessian fly has sadly thinned many fields of wheat, and the blades have been killed by red rust. Wheat passed out of blossom without heavy rains or high winds, and is consequently entirely free from scab, which proved so destructive last year. If the weather proves favorable for the next three weeks we will harvest three-fourths of a crop. Had the usual amount of fertilizers been used last fall I think the crop would have been a full average.

In Virginia rust is reported in King George, Nansemond, Surry, Nelson, Chesterfield, Buchanan, Lee, Middlesex, Pulaski, and Lancaster; and the fly in Campbell, Chesterfield, King George, Augusta, and Pulaski. While the general prospect is not very unpromising, there are some counties in which the reduction is heavy, as will be seen by the following extracts:

*Buchanan County, Va.*—Wheat suffering from excessive wet, hot, and sultry weather. Rust in nearly every field. Great complaint of smut; some fields totally ruined. The fallow crop very poor.



*Lee County, Va.*—Rust has greatly damaged the wheat.

*Clarke County, Va.*—A heavy growth of straw in the northeastern part of the county; in others the report is less favorable. The crop of the county will probably be 5 per cent. above an average.

*Augusta County, Va.*—The wheat is thin; some fields were seeded to oats. The fly has done considerable injury. The wheat heads are long, however, and will probably yield a good crop.

*Spotsylvania County, Va.*—Wheat ripe sixteen days earlier than for many years. Very little injury from disease or rust.

*King George County, Va.*—Wheat retains its promising appearance, but it can hardly mature well while the ground is so saturated. Rust on several plantations. The recent storms have thrown down the rank wheat. Crops are not uniform; some are light and damaged by fly, and some by rust. Results uncertain; prospects by no means favorable.

*Nansemond County, Va.*—Although we have had a very dry spring and considerable rust, winter wheat is heavier, with larger heads, and altogether better than last year. Birds are so destructive to smooth wheat that we cannot raise it; they injure the bearded scarcely any.

*Middlesex County, Va.*—The rust struck wheat as early as the 20th of April, and before the 5th of May the lower blades were entirely dead, and now the fields throughout the county are red, and farmers are offering their crops for half they cost them.

The prospect is less flattering in the Carolinas than in Virginia. Rust has appeared in many sections, including the counties of Orange, Macon, Stanley, Yadkin, Stokes, Mecklenburg, Gaston, Rockingham, Harnett, Alamance, Beaufort, Union, Green, Davie, Anson, Montgomery, Camden, Franklin, Perquimans, Bladen, Cowan, and Gates, in North Carolina; and in Newberry, Union, Lexington, York, Spartanburg, and Richland, in South Carolina. The fly has totally destroyed many fields in Montgomery, produced some injury in Davie, and destroyed some early fields in Orange, North Carolina; and injury from the same cause is reported in Greenville and York, in South Carolina.

*Pasquotank County, N. C.*—We have a more perfect failure of the wheat crop than I have ever known.

*Mecklenburg County, N. C.*—Wheat looked well up to the 20th of April, when a long cold rain occurred. Rust prevalent. One farmer who sowed for 450 bushels, and who expected 400 bushels one month ago, now thinks he will not have over 50.

*Spartanburg County, S. C.*—It was thought that wheat would be almost a failure from rust, but it is filling remarkably well, and should the weather continue favorable, there will be a fair crop.

*Union County, S. C.*—Rust on the wheat and an insect in the roots.

Wheat is not a prominent crop in the South. The acreage of the Gulf States appears to be but slightly increased. The reports of condition are comparatively low, rust and the fly having wrought much damage. The following items are from our correspondence:

*Gordon County, Ga.*—Wheat set back by cold rains and rust.

*Dawson County, Ga.*—Too much rain for wheat. Serious damage by rust.

*Talbot County, Ga.*—Wheat crop reduced by immense numbers of rice birds feeding upon it.

*Murray County, Ga.*—Wheat crop nearly ruined. On the bottom lands it has been attacked by the fly, rust, and spot. Other crops promising.

*De Kalb County, Ala.*—Wheat almost ruined by excessive rains. Some fields will not be cut at all. Not over half a crop.

*Randolph County, Ala.*—Increased acreage in wheat. That sown in December looking well; that sown in January is a little backward, though promising.

*Washington County, Ark.*—Prospect for winter wheat very good in early spring; early sown wheat killed by frost the 25th of April; later sown more or less injured.

*Madison County, Ark.*—Early wheat killed by frost the 22d of April; farmers planting their wheat fields with corn.

*Cherokee County, Texas.*—Wheat harvest commenced May 29; considerably damaged by rust.

*Dallas County, Texas.*—Wheat poor, owing to the great quantity of rain.

*Medina County, Texas.*—A dry winter and severe spring frosts damaged the growth of winter and spring wheat considerably; the rains at the end of March came too late to repair the injury.

*Grayson County, Texas.*—Damaged by rust, which appeared early; quality fair, but kernel not well filled.

*Burnet County, Texas.*—Wheat and other cereals not much cultivated of late, on account of rust from spring rains.

Rust is prevalent in many counties in Tennessee; the loss is estimated at 40 per cent. in Hancock; the blades are rusted in Humphrey, and in many fields the stalks are involved; scarcely more than half a crop is expected in Hawkins; in Hickman some fields are given up to pasturage; much discouragement is felt in Knox; Stewart promises but half a crop; and rust is also reported in Dyer, Giles, Hardin, Campbell, Coffee, Loudon, Jefferson, Lauderdale, Monroe, Meigs, Oglethorpe, Polk, Robertson, Rhea, Smith, Sullivan, and Sevier. The fly is reported in several counties, and the joint-worm is mentioned in Jefferson and Loudon. The Sullivan correspondent significantly remarks: "This season teaches the farmers that book-farming is no humbug; we *must* improve our worn-out lands or starve out."

The reports from West Virginia are quite uniformly favorable. The only counties reporting rust are Cabell and Jefferson. Some injury has been wrought by "the fly" in Nicholas. In Braxton wheat is early, nearly all of the Tappahannock variety, and a larger quantity is expected than ever before. The best crop ever raised in Monongalia is predicted.

In Kentucky a full crop is scarcely expected. Much damage was done by the heavy frost of April 23. The injury was especially severe in Anderson, Bourbon, Clark, Carroll, Edmondson, Franklin, Henry, Jackson, Laurel, Lincoln, Marion, Ohio, Shelby, Spencer, Scott, and Warren. The following items are quoted:

*Carroll County, Ky.*—Wheat, rye, and barley were in fine condition up to April 23, when the frost injured the wheat very seriously, especially on the river bottoms, and now rust has attacked many fields.

*Edmondson County, Ky.*—Winter wheat was damaged by frost and rust on the blades. The prospect for a good harvest has, however, improved of late.

*Jackson County, Ky.*—Wheat was damaged materially by the frost of April 23, especially the Tappahannock kind. I regret very much the damage done this kind of wheat, as it is considered by those who have made experiments with it to be the best and most profitable wheat that has ever been introduced into this part of the State. Wheat sowed early last fall is damaged considerably by the fly.

*Laurel County, Ky.*—The wheat crop has been very materially injured by the Hessian fly, rust, and frost of April 23. Perhaps the estimate of 50 per cent. of an average is too high; taking into consideration the increased acreage we shall make about one-half crop.

*Shelby County, Ky.*—The frost on the night of April 22 almost entirely destroyed the early varieties of wheat. Late varieties are more promising. Rust is on the blades of wheat and rye.

*Scott County, Ky.*—The frost of April 22 injured the Tappahannock wheat very much, it having commenced jointing. The other kinds were not advanced enough to be hurt.

Very few complaints come from Ohio. The Logan correspondent says the growth of wheat is remarkable, and the crop is uniformly heavy, though rust and the joint-worm have caused some uneasiness. Early wheat was injured in Champaign County by the frost of April 14. Insects, rust, and frost have greatly injured the prospect in Adams, and in Jackson "there will hardly be enough wheat raised in the county for seed." There is some apprehension of loss felt in Holmes, Darke, and Greene.

In Indiana the prospect is slightly below an average. Frequent and heavy frosts during April and May did a large amount of injury. In places some loss is apprehended from drought, which prevented growth and tillering. In Park no rain sufficient to wet the ground has fallen since February 17. The straw and heads are short in sections injured by frost and drought. The harvest will be early. In Ripley "some fields are



as yellow as saffron—the Michigan white wheat rusted badly, while the old Mediterranean and Hill were not much hurt.” Rust is quite general, though not very destructive; the fly is reported in several counties, but the enemies of the crop have been frost and drought.

The promise for wheat in Illinois, in the southern counties of which the harvest commenced early in June, is fine. In Cook County a finer prospect “was never known;” in De Kalb “the outlook is encouraging in the highest degree,” and our correspondent in Marion says: “I have lived here thirty-three years, and never saw such a good prospect for wheat.” The harvest is unusually early. Our Livingston correspondent reports that “one of our farmers commenced cutting his barley May 31, the earliest harvesting ever done in this county; while in Monroe barley was cut in the first week in May, and some red May wheat was cut about the same time. The chinch bug has injured spring wheat in De Kalb, Grundy, Hancock, Kankakee, Livingston, Putnam, and Sangamon; the effects of drought are mentioned in Clay, Effingham, Greene, Jo Daviess, Franklin, Lawrence, Marion, and Randolph; and rust, which has been less injurious than in many other States, is reported in Edwards, Peoria, Polk, Pope, Scott, and White.

A fine crop on an enlarged area is assured in Iowa. In Boone “there has never been a better prospect for crops of all kinds since the first settlement of the county;” in Clayton all crops are ten to fifteen days in advance of other years; in Cherokee wheat looks well, and “the acreage doubles each year, owing to immigration;” in Hancock is reported “the earliest spring ever seen by the oldest settlers of the county;” in Iowa “the most favorable season for starting crops ever known;” “the wheat crop never looked better” in Marshall, in Marion, or in Story. The chinch bug appears in spring grain in Decatur and Taylor; and drought has been more or less injurious in Jefferson, Page, Plymouth, Shelby, and Wapello.

*Kossuth County, Iowa.*—The weather has been very favorable and crops never looked better. A large breadth has been sown on new land, and much breaking has been done.

*Pocahontas County, Iowa.*—Propitious spring rains have brought along the grain finely. Acreage has increased, owing to the rapid development of the county, immigration being very heavy.

A fine crop is reported from Missouri. The drawbacks are numerous, but slight in influence, and include frost, drought, insects, and rust. The chinch bug is reported in Adair, Cass, Harrison, Johnson, Linn, and Nodaway; the fly in Cass, Jasper, Johnson, Lafayette, Marion, and Phelps; drought in Franklin, Texas, Phelps, and Osage; and rust in Benton, Calloway, Cass, Chariton, Cape Girardeau, Moniteau, and Montgomery.

*Jasper County, Mo.*—Most of the wheat was sown after October 1, and is extra good. That sown before that date is much injured by the Hessian fly.

*Lafayette County, Mo.*—The wheat has been injured at least 40 per cent. by the fly.

*McDonald County, Mo.*—Wheat considerably injured by severe frost April 22, which killed the young growth of timber.

*Osage County, Mo.*—The drought of April and May destroyed the very flattering prospect for wheat.

Wisconsin appears to be as free from injuries to the wheat crop as any other State. The chinch-bug is reported in Iowa County, and the worm (joint?) in Calumet and Sheboygan. A fine yield is anticipated.

*Dane County, Wis.*—The season has been more than usually favorable, and almost every branch of farm work and all farm crops are at least in average condition. In some fields the small grains are injured by an unusual amount of “pigeon” and “fox-tail” grass.

*Marathon County, Wis.*—No rain for four weeks previous to June 1.

Minnesota will sustain her reputation for good crops, though the season has not been uniformly favorable. It was cold and wet in seed-time, and several weeks of drought followed, but late rains, warm and seasonable, have benefited the crop.

The wheat of Michigan can scarcely be improved in condition. In some places fears begin to be entertained of injury from drought, but refreshing rains have dissipated such forebodings.

Kansas reports the largest increase of acreage of any of the States, and stands among the first in condition of the plant. In Coffey County the rust made its appearance on the blades, but did not extend to the stem, and "an enormous crop" is promised. Early sown wheat in Linn was injured by the fly to such extent that some fields were plowed up. Injury is reported from the same cause in Bourbon, Franklin, Johnson, Miami, Wilson, Wyandot, and Woodson. The chinch-bug has committed depredations in Nemaha, Osage, and Shawnee.

*Montgomery County, Kansas.*—Crops of all kinds promise well. Plenty of rain. This county is about two years old. There are 100 acres in cultivation this year for every one last year.

All kinds of spring grain look well in Nebraska, and promise a large yield. In some sections the season has been rather dry, and the straw will consequently be short and the heads small.

In California there is a small crop. It was feared, in the early spring, that the failure would be disastrous, that the yield would not supply bread for the people and seed for the next crop. At the date of our returns, all of which have been mailed since the commencement of the present month, the prospect had brightened, with the aid of light but seasonable rains, indicating a surplus of four or five millions of bushels. It is thought in Napa that recent rains have been worth \$100,000 to the crop. In Colusa, in the midst of failure, instances of a probable yield of 30 bushels per acre, the result of summer-fallowing and fall-plowing, show that good crops, in California as elsewhere, depend more upon good cultivation than fertility or climate. In San Joaquin Valley, where utter failure was imminent, a respectable yield will be obtained in places. Reports are more encouraging from Stanislaus, where the reduction will be less than was anticipated. The headers were at work at Sherman's Island on the 5th of June, and the harvest was progressing in Merced County, with improved prospects. A material improvement is also reported in Monterey. The only counties reporting average condition are Butte, Del Norte, Siskiyou, Tuolumne, and San Bernardino.

There is a fine prospect for a good crop in Oregon. The acreage of spring grain is reported as slightly increased, with a small increase of winter wheat. Washington Territory also has a fine prospect for a bread crop. In the Walla-Walla Valley "the grain crop never looked better;" a million bushels may be harvested in Walla-Walla County—promising a revenue of \$700,000 in gold.

#### CORN.

The acreage of corn will not be reported until July. The tenor of reports is favorable as to condition. The corn-granary of the West, the State of Illinois, is green with corn-fields, which were planted early, and grew vigorously. In sod-land cut-worms have been very troublesome, in many instances rendering a replanting necessary. The De Kalb correspondent says, "The corn is looking splendid, and by the 4th of July it will be as high as a horse's back." In some places the want of rain has been felt.

The reports from Iowa and Missouri are mainly favorable. Worms are quite generally injurious, and in several counties drought has been severe, yet expressions like the following are very frequent: "Corn is in fine condition, and if there is a little more rain there will be a big crop;" "We never had a better stand, or such clean fields;" "Corn prospect was never better." Like all other vegetation, corn is more advanced than is usual at this date. The returns from Kansas are very favorable, with less complaint of cut-worm and drought than from more eastern States.

In Ohio, Indiana, Kentucky, and Tennessee an average prospect is revealed, with some tendency to drought in light soils, and the prevalence of cut-worms in sod-lands.

Throughout all these States there are counties in which "corn had a bad start," from cold rains early in the season, after the warm spell in April, in which a large amount was planted. Where the surface was level, the soil an impervious clay, and drainage therefore imperfect, this evil was aggravated. Such reports will be inevitable until good culture, in connection with requisite preliminary farm improvements, shall better adapt our soils to the vicissitudes of our changing seasons.

In the Middle and Eastern States drought and cut-worms have been more injurious than in the West.

In southern reports reference is frequently made to an increase of acreage. The crop is reported in good condition, except where growth has been retarded by cold rains. The stand is more generally good than in the Northern States. Corn is, in most sections, later than usual, on account of cold, wet weather, and the consequent delay in weeding and cultivation. The following items will show a great variety in condition:

*Lawrence County, Ala.*—Upland corn looks well. Planting on low lands delayed six weeks.

*Clay County, Ala.*—Small corn crop from bottoms, unless the fall be late.

*Dallas County, Ala.*—Very promising where it has been cultivated and not neglected for cotton.

*Yalabusha County, Miss.*—Acreage larger and stand better than usual, but the crop has suffered from too much rain.

*Rapides Parish, La.*—Corn looks sickly, owing to cold weather; early planted in silk.

*Prairie County, Ark.*—A large crop of corn has been planted; at least four weeks later than usual, owing to heavy rains.

*Union County, Ark.*—Twice as much corn planted this year as last.

*Refugio County, Texas.*—Corn has suffered much from drought; some too far advanced to be benefited by the recent rains.

*Bandera County, Texas.*—Spring unusually cold and dry; about two-thirds of a stand of corn from the first planting; the replanted is up; a rain on the 19th of May has revived the crops and the hopes of the farmer.

*Austin County, Texas.*—Corn looks well; is more forward than last year. Crops are rather backward in the eastern parts of the county on bottom-lands.

#### COTTON.

In June, 1870, good middling cotton was quoted in New York at 23½ cents; in Boston at 24½; and in October the same grade brought only 16½, and in December only 15½ cents. Thus the penalty for growing four millions of bales instead of three was a reduction of seven cents per pound, equivalent to \$130,000,000 on the crop. In our monthly for June, 1870, the declaration was made that "the cotton-growers seem determined to reduce the price to 15 cents, with every prospect of doing it. The acreage is materially increased in every State, while that of wheat has decreased." In the July report the opinion was expressed that "with an average season the present acreage should give nearly three and a half millions of bales; with one of the extraordinary length



of the last, the produce would be little short of four millions." The correctness of that estimate was fully verified, a full half-million of bales having been contributed by the extreme length of the season. In October, the harvest having progressed thus far auspiciously, the estimate of 3,800,000 bales was placed on record. No fairer prediction could have been made; an early date for the recurrence of a killing frost would have reduced the yield below that figure, while the greatly lengthened season did actually secure a larger product.

The Department of Agriculture has received returns from nearly three hundred counties, representing the most productive districts of each of the cotton States, and showing the comparative acreage and the condition of the crop in the first week in June.

A diminution in the area planted in cotton appears in every State except Florida. The most careful analysis of the returns, with due regard in making averages to the extent of cotton production in the respective counties, gives the following percentage of reduction in comparison with last year: Virginia, 30 per cent.; North Carolina, 14; South Carolina, 13; Georgia, 12; Alabama, 13; Mississippi, 15; Louisiana, 8; Texas, 14; Arkansas, 16; Tennessee, 12. These State averages, reduced to a general average, the assumed acreage of the respective States being an element in the calculation, will place the reduction of the cotton area of 1871, as compared with that of 1870, between 14 and 15 per cent., equivalent to nearly a million and a third of acres. This would leave between seven and a half and eight millions of acres as the present area in cotton. The average yield has not, in former years, exceeded 150 pounds per acre; that for 1870 was more than 200 pounds.

The condition of the growing crop is below an average in nearly every State. The spring has been unusually wet and cold, retarding growth, causing the plants to turn yellow and die, and obstructing cultivation. To a large extent replanting has refilled the vacant spaces of imperfect "stands." The weather has recently been more favorable, and it is not impossible that an average condition may be attained by the commencement of the picking season. The "condition" of cotton in July of 1869, a year favored with an abundant yield, was only a little better than the showing for June of the present year. While the prospect is slightly unpromising, there is nothing in it of a decisive character. The percentage, below an average condition, is respectively as follows in the several States: North Carolina, 10 per cent.; South Carolina, 8; Georgia, 18; Alabama, 17; Mississippi, 16; Louisiana, 10; Texas, 7; Arkansas, 17; Tennessee, 10. In Florida the condition is 3 per cent. above an average.

An official estimate of the ultimate result so early in the season would be an absurdity. The influence of future rains, floods, frosts, and insect enemies, cannot be calculated in advance. But in view of the extremely favorable circumstances affecting the crop of last year, there cannot be expected in the present season, upon a reduced area, exceeding three and one-half millions of bales. An early frost, or the prevalence of insects, or a very unpropitious season, might reduce the yield to three millions; and a still further reduction is possible in the union or severity of several of these causes of failure.

A very general disuse of fertilizers is reported in Georgia and the Carolinas, where last year their application was almost universal, and in many instances, excessive. This fact may contribute to a reduction of the aggregate yield of the year. Their cost was found to be disproportionate to the increase in production at current prices for cotton.

The rains of April and May have been general, and in some sections abundant in quantity. At Selma, Alabama, the rain-fall in April amounted to 12.5 inches; at Green Springs, in the same State, 13.3 inches; at Philadelphia, Mississippi, 10.8 inches; and at Fayetteville, Arkansas, 7.5 inches. The State averages of the several meteorological stations of the southern States, as reported to this office for the Smithsonian Institution, for April and May, are as follows:

	APRIL.	MAY.
	<i>Inches.</i>	<i>Inches.</i>
North Carolina .....	3.1	5.04
South Carolina .....	3.51	4.55
Georgia .....	3.87	3.85
Alabama .....	.....	4.89
Texas .....	2.36	3.65
Louisiana .....	2.97	5.11
Mississippi .....	7.67	8.22
Arkansas .....	6.25	5.85
Tennessee .....	5.48	4.21

In certain districts in Texas the fall of rain was much larger than the average; at Gilmer it amounted to 6.73 inches.

The temperature of April and May, especially of the early part of May, was low and extremely unfavorable to the growth of the plant.

The following extracts, from the notes accompanying the returns of correspondents, will give an idea of local views and prospects:

*Surry County, Va.*—More cotton planted than last year. The cold nights of May checked its growth.

*Greene County, N. C.*—Cotton fifteen days backward, caused by cold weather in May.

*Duplin County, N. C.*—Unusually promising. Good stands and plants two weeks earlier than usual.

*Anson County, N. C.*—Has been injured, but will recuperate.

*Richmond County, N. C.*—Heavy rains and unseasonable weather have caused material damage.

*Camden County, N. C.*—Cotton killed out when planted early; but when planted late the stand is good, but growth much inferior to last year.

*Franklin County, N. C.*—Area greatly diminished, and the stand is a very bad one. The hot, dry weather for a week past has been favorable to cotton and has saved it from dying. Farmers are turning attention to corn, oats, and wheat.

*Sampson County, N. C.*—The wheat crop will soon disappear from this county at the present rate, and cotton take its place. Almost every one, before cotton was planted, said less cotton this year than last; but the fact is the acreage has been increased ten per cent. The cold nights in May have damaged the stand materially, but I hear of no one who has plowed up the cotton and put in corn.

*Currituck County, N. C.*—Cotton small.

*Edgecombe County, N. C.*—For ten or twelve days the weather has been hot and favorable.

*Pasquotank County, N. C.*—The recent cold weather has nearly ruined the cotton. Probably not over one-fourth of a crop can be made this year.

*Stanly County, N. C.*—Damp cold nights have caused the cotton to turn yellow and rot. Many fields are an utter failure.

*Gaston County, N. C.*—Has suffered from cold dews, and loss may ensue. Propitious weather will repair the breach.

*Moore County, N. C.*—Is late, but the present warm dry weather will start a vigorous growth.

*Beaufort County, N. C.*—Killed to some extent, and there has been considerable late planting. Present condition a fair average. The acreage is much diminished, owing to the low price of the staple, and there is a very decided tendency to a diversity of crops.

*Perquimans County, N. C.*—About two-thirds of the acreage of last year. The prospect fair.

*Bertie County, N. C.*—Less cotton and more corn planted.

*Bladen County, N. C.*—Cotton backward, but improving.

*Newburg County, S. C.*—Stands very poor on sandy soil; plants small and have suffered from the cool weather of spring.



*Orangeburg County, S. C.*—The provision crop has been much increased in acreage, at the expense of the cotton crop ; the cold spring caused the cotton to die out so much that many planters replanted ; very little commercial fertilizer used this year, and the crop is very backward.

*Williamsburgh County, S. C.*—Acreage reduced ; comparatively little commercial fertilizer used ; crop is in average condition.

*Fairfield County, S. C.*—Cotton backward and unhealthy, owing to cool nights in May.

*Lexington County, S. C.*—Cotton backward, owing to cold weather.

*York County, S. C.*—It has been the general desire to cut down the acreage in cotton, but I am satisfied that the area planted is fully up to last year, while the stand is much better and earlier ; the plants are small but healthy.

*Richland County, S. C.*—Is recovering from the effects of the unusual cold of the first half of May.

*Brooks County, Ga.*—Cotton backward, owing to wet and cold spring ; prospect improving ; average acreage.

*Harris County, Ga.*—The remarkably wet spring caused much of the cotton to dwindle and die ; cotton acreage decreased and more corn planted.

*Emanuel County, Ga.*—Much of the area planted has been plowed up and replanted—a good portion of it in corn. The older farmers say they never saw such a poor prospect for cotton ; all caused by continued heavy, beating rains, which still continue.

*Newton County, Ga.*—Acreage decreased 20 per cent. ; condition 23 per cent. below an average, due to atmospheric changes with an undue quantity of rain.

*Harris County, Ga.*—The long, wet spring has spread general gloom over the farmers. Cotton has died out to a very bad stand, and laborers work without spirit.

*Pulaski County, Ga.*—Cotton acreage reduced 10 per cent., and the condition is 25 to 33 per cent. below that of last year. Cotton poor ; spring early, but too much rain.

*Wilkes County, Ga.*—Was never in much worse condition ; late and small. Some yet replanting to secure a better stand.

*Hancock County, Ga.*—Stand of cotton below average, owing to cold wet spring.

*Troup County, Ga.*—Cotton backward, but quite as good as last year.

*Harris County, Ga.*—Is not doing well. We had some eight to ten days of rain the last of May and first of June, which has given an impetus to grass. On all these days our plows and hoes were idle. Most of the time the ground was too wet to work.

*Twiggs County, Ga.*—Cotton backward. Improving until within a few days, in which we have been having heavy rains.

*Carroll County, Ga.*—The coldest and wettest spring known by the oldest inhabitants. Cotton never worse. A large quantity plowed up and planted in corn or replanted in cotton ; too late to do much.

*Muscogee County, Ga.*—Cotton backward.

*Jones County, Ga.*—A poor stand ; small, grassy.

*Merrimether County, Ga.*—Poor stand ; poor condition.

*Spalding County, Ga.*—The stand upon the red land is generally good ; but upon gray land there is much complaint.

*Dooley County, Ga.*—Cotton prospect not flattering.

*Laurens County, Ga.*—Many planters have replanted cotton, and a great deal is just up and is completely choked with grass and weeds. Should the rains continue four weeks longer the crop will not reach 25 per cent. of an average.

*Schley County, Ga.*—Cotton improving.

*Walton County, Ga.*—Stands good ; plants healthy and growing finely.

*Sumter County, Ga.*—Not very promising. Some farmers have plowed up and replanted to destroy the grass.

*Columbia County, Ga.*—Young cotton killed to an alarming extent by the cold nights of May.

*Wilkinson County, Ga.*—Imperfect stand, and what is left looks badly, with diseased stem.

*Chambers County, Ala.*—Spring uncommonly wet, and cotton has suffered considerably. Many farmers have replanted. Time enough for a fair average crop. Acreage decreased in favor of corn.

*Calhoun County, Ala.*—In the grass generally.

*Marengo County, Ala.*—Very unpromising. All the river and creek lands have been overflooded and have been replanted. Constant rains prevent working the crop.

*Lawrence County, Ala.*—Very much damaged by continued rains, but may still make a full crop.

*Autauga County, Ala.*—Crop injured 20 per cent. by excessive rains.

*Macon County, Ala.*—Cotton backward and poor, owing to the excessive rains. The bottom lands cannot make a crop this year.

*Tallapoosa County, Ala.*—Cotton small and puny.

*Greene County, Ala.*—Very small and grassy. The stand not good.

*Clay County, Ala.*—Excessive rain has injured cotton.

*Randolph County, Ala.*—In some fields the stand and condition are very good, while in others the plants have died out. Acreage about half that of last year.

*Dallas County, Ala.*—Excessive rains have materially injured the cotton crop.

*Liberty County, Ga.*—Cotton backward. The cool nights have caused the tender plants to die out.

*Forsyth County, Ga.*—Injured by excessive rains and cold weather between the 1st and 12th of May.

*Butts County, Ga.*—Has died out in some fields of stiff lands from the effects of cold. The spring unfavorable for cotton.

*Conceh County, Ala.*—At least one-third less acreage in cotton. In bad condition on wet lands; on high land the crop is looking better than for years.

*Perry County, Ala.*—Excessive rains; cotton later and in worse condition than I ever saw it on the 1st of June.

*Wilcox County, Ala.*—Cotton small and grassy, with poor stand.

*Sunter County, Ala.*—Heavy rains; many farmers have replanted.

*Hale County, Ala.*—Planting interrupted by excessive rains; a portion has been replanted in cotton and a portion in corn. Planters discouraged.

*Shelby County, Ala.*—Cotton crop seriously injured by rain.

*Clarke County, Ala.*—Much less planted than last year. On the uplands looks badly excessive rains.

*Swanee County, Fla.*—Is in poor condition, owing to the cold, backward spring.

*Leon County, Fla.*—Good stand; the low price has induced many farmers to plant corn instead.

*Holmes County, Miss.*—More backward than usual; many stands totally ruined by lice; cool spells and heavy rains have retarded planting, and many farmers are replanting where there was a good stand at first. Late cotton has done best, but there is scarcely a clean crop in the county.

*Lauderdale County, Miss.*—One-third less planted, and the unfavorable season will destroy fully one-third of the area planted.

*Lafayette County, Miss.*—Not promising; grassy.

*Kemper County, Miss.*—Cotton a month late, poorly put in, and much of the land usually put in cotton is being planted in corn.

*Grenada County, Miss.*—Unpromising; excessive moisture. The weather is now more favorable.

*Marion County, Miss.*—There will be little cotton made in this county; excessive rains.

*Pike County, Miss.*—Season has been unpropitious for cotton. Weather now more favorable.

*Yazoo County, Miss.*—In poor condition; excessive rains; as poor a prospect as I have ever seen in the county in forty years.

*Newton County, Miss.*—Injured by excessive rains, but it is fast coming out; and though the area is small compared with last year, the prospect is fair for a good crop.

*Washington County, Miss.*—Backward, and labor is two weeks behind on the crop. Excessive rains.

*Claiborne County, Miss.*—Backward, owing to the heavy rains and cold nights.

*Winston County, Miss.*—The cold weather and the continued rains have killed a great deal of the cotton. Some farmers have replanted; some as late as the 20th of May.

*Clark County, Miss.*—Acreage decreased, and the first planting destroyed in a great measure. Some have just finished replanting.

*Attala County, Miss.*—Acreage a little larger than last year; but we have never had a poorer crop prospect. Owing to the wet weather of the last two months, many crops can never be fully redeemed—lost in grass and weeds.

*Yalabusha County, Miss.*—Stands of cotton poor, and it is so in the grass that it will be impossible to cut out the grass without injury to the cotton. Altogether the prospect is considered gloomy for cotton.

*Madison Parish, La.*—One month later than usual; stand very poor; that which has come up partly destroyed by lice; less by one-third planted this year than last, owing to continued rains.

*Winn Parish, La.*—Very backward in consequence of wet and cold; at present looks unpromising.

*West Feliciana Parish, La.*—Stand injured by heavy rains in April and May; crop generally unpromising.

*Rapides Parish, La.*—Extremely backward, owing to wet and cold weather; also badly in grass.

*Washington Parish, La.*—The acreage is increased this year, but the crop in general does not look well.

*Prairie County, Ark.*—About half as much planted this year as last; at least four weeks later than usual.

*Clarke County, Ark.*—About half a crop planted; has been nearly destroyed by rains.

*Cross County, Ark.*—Crop considerably injured by cold and wet weather.

*Drew County, Ark.*—Crop very foul, owing to heavy rains, which have prevented working the land.

*Pulaski County, Ark.*—Cotton slim and infested with lice, in consequence of continued wet and cold; coldest season for ten years.

*Phillips County, Ark.*—Crop about two weeks later than usual; cold rains and hail-storms killed about all planted from the 10th to the 20th of April; later planted looks finely.

*Union County, Ark.*—Only about half as much cotton planted as last year.

*Lafayette County, Ark.*—Crop very backward, owing to a late spring and consequent delay in planting.

*Cherokee County, Texas.*—Spring cold and backward; cotton infested with lice.

*Lavaca County, Texas.*—In bloom; acreage about the same as last year; prospect for a good crop at least twenty per cent. better

*Grimes County, Texas.*—Season more favorable and prospect better for cotton than last year.

*Upshur County, Texas.*—Not so much cotton planted as last year; crop very backward in consequence of heavy rains.

*Kendall County, Texas.*—Acreage much smaller than usual, caused by low price last year.

*Henderson County, Texas.*—About seven-tenths the usual acreage planted this year; too much rain for healthy growth of the crop.

*Austin County, Texas.*—About twenty-five per cent. less planted than usual; stand good; prospect for a large crop promising.

*Washington County, Texas.*—The acreage is much less than last year, occasioned by its low price and the scarcity of labor. Much cotton was lost last year from want of hands to gather it.

*Decatur County, Tenn.*—Prospect for a crop very poor.

*Giles County, Tenn.*—During the cold rain in the middle of May much cotton died.

*Hickman County, Tenn.*—Peanuts have taken the place of cotton.

*Lauderdale County, Tenn.*—More corn planted than last year, and less cotton; about 20 per cent. more corn, and 20 per cent. less cotton.

*Lake County, Tenn.*—The reduction in the acreage is attributable to the low price of the product and the difficulty in obtaining labor.

*Oglethorpe County, Tenn.*—Has suffered from a variety of causes. First, it failed to come up well; second, cold, wet spells have caused it to die out very seriously. It is now raining, and too cold for the season.

#### SUGAR-CANE.

We have few returns this month concerning sugar-cane. The report from Terre Bonne Parish, Louisiana, indicates a fine crop, three-tenths above an average; in Saint Martin's Parish the stand, both of stubble and plant cane, promises to be good, except in cases in which the stubble is a little backward; in Plaquemines, the estimate is ten per cent. above. The condition of cane in Saint Helena is reported to be not so good as last year by ten per cent.

#### PASTURES AND CLOVER.

Pastures are not in average condition on the Atlantic coast from Maine to Virginia, or in the Ohio Valley, but are in succulent growth in the Carolinas, the Gulf States, Wisconsin, the States bordering on the Upper Mississippi and Missouri, and Oregon. Clover warrants a similar statement, except that there is comparatively less reduction in the Western States. The prospect for a good crop of hay is not flattering, on account of dry weather. A few representative extracts are presented:

*Norfolk County, Mass.*—Clover largely winter-killed; at least two-thirds of the meadows seeded last spring are failures, and in most cases have been re-seeded. Old meadows were largely injured by the dry weather of last year and the open winter, so that the prospect for hay is extremely dark. Farmers are trying to compensate for the loss by sowing corn, millet, &c., to cut green. Spring pastures show the effects of last year's drought.

*Bristol County, R. I.*—Grass will probably fall short one-third from last year, on account of the dry weather last fall, which killed the grass. Farmers are plowing up the



fields and planting corn and English turnips, which will, in a measure, make up for the loss of hay.

*Rockland County, N. Y.*—Pastures drying up, and farmers are turning their stock into fields they had intended to mow.

*Tioga County, N. Y.*—Pastures have suffered from the frosts and dry weather.

*Hunterdon County, N. J.*—Farmers are sowing their clover-seed on oats-ground; it does not do so well as when sown on wheat or rye. It often fails to take, and dry weather has more effect upon it when sown on oats-ground. Spring pasturage injured by the drought. Hay crop will be very much shortened if the drought continues.

*Cambria County, Pa.*—Grass short, but well set and thick.

*Wyoming County, Pa.*—Clover almost destroyed by the drought.

*Montgomery County, Md.*—Springs are failing and pastures are unusually short. The hay crop will be a failure with many farmers.

*Surry County, Va.*—Farmers are beginning to see the use of clover, and the area is annually increasing. The crop fine.

*Augusta County, Va.*—Most of the upland grass hardly worth mowing. Pasture short.

*Adams County, Ohio.*—Clover greatly injured by the cut-worm.

*Parke County, Ind.*—Owing to drought, the hay crop will be a failure this season.

*Switzerland County, Ind.*—The hay crop promises to be heavy.

*Crawford County, Ill.*—Clover short up to May 21, when rain fell. Vegetation has since flourished.

*Perry County, Ill.*—April and early May were dry, affecting grass "disastrously." Late May showers will bring oats up to an average, but pastures will be short.

*Winnebago County, Ill.*—Clover and timothy wintered remarkably well, and obtained an early start. Owing to short forage, farmers turned their stock into the meadows until May, and there will be another short hay crop.

*Hancock County, Iowa.*—Earliest spring ever known in the county. The grass on the prairie large enough to mow; it is a month in advance of the growth of last year.

*Monona County, Iowa.*—Prairie pasture earlier and better than for fifteen years. Clover, as an experiment, doing splendidly.

*Monroe County, Iowa.*—Pastures got a good start, and keep up well. Timothy will be light.

*Lincoln County, Mo.*—Timothy meadows promise a light yield.

*Juneau County, Wis.*—Grasses are looking much better than at this time last year; there will be an abundant crop of hay.

*Bay County, Mich.*—The lack of rain is badly felt here; the crop of hay will be light unless rain falls soon.

*Emmett County, Mich.*—Owing to cold nights in April and May grass did not grow rapidly, but late rains have improved all crops.

*Anderson County, Ky.*—The winter was the mildest ever known in the county, and the grass for pasture was the earliest.

*Lincoln County, Ky.*—The frost of April 23 has done great injury. Grass, which made a very early and thrifty start, has done badly since.

*Giles County, Tenn.*—More of the grasses sown than in any previous year. Cold, backward spring.

#### OATS.

Oats have shared the fortunes of clover and the grasses, having suffered somewhat from dry weather in the Atlantic States and in the Ohio Valley. The crop of the Gulf States will be a large one for that section, and that of the region west of the Mississippi will be a full average on an increased acreage. Oregon will also make a fine crop. The following items are extracted from correspondence:

*Orange County, Vt.*—Increased acreage in oats, and the condition is better than last year, on account of more rain.

*Monongalia County, W. Va.*—Prospect for oats very poor; eaten by a small bug or louse; many fields have been planted in corn.

*Norfolk County, Mass.*—Oats have come up well; a large acreage, owing to sowing with grass-seeds, to be cut green for fodder.

*Albany County, N. Y.*—The crop of oats must be very light, owing to the drought and the open winter.

*Ocean County, N. J.*—Oats suffering severely from drought.

*Greene County, Pa.*—Oats are in a deplorable condition; there is no possibility of making more than half a crop, and many fields will have acres on which there will be no oats. They are killed by a small green louse that clusters on the blades; the trouble is general throughout the county.

*Surry County, Va.*—Much larger area sown to oats than in any previous year since the war. Condition quite good, considering the hasty manner in which it was put in.

*Camden County, N. C.*—Oats are looking well, but will be injured by rust.

*Union County, N. C.*—Rust on the oats, and insect in the roots.

*Richland County, S. C.*—More than usual attention has been given to the oat crop, which, though slightly affected by rust, promises an abundant yield.

*Leon County, Fla.*—Oats (except the "rust-proof" variety) have rusted to a greater or less extent.

*Jackson County, Fla.*—Crop was much increased in acreage this year, and hopes were entertained that it would form an entering-wedge to a system of rotation and diversity of crops. An oat called "*anti-rust*" does well and perfects its seed annually; from experience and repeated trials, no other will perfect its seed with us. Why is it? It is very difficult to determine, from the fact when sown alongside of each other no difference is perceptible until, about the panicle, the one withers, losing vitality, and yields nothing; the other perfects its seed and yields abundantly, season propitious. To sow in the fall has no influence. Some farmers are of the opinion that the "*anti-rust*" grows more rapidly and comes to seed much earlier, escaping the blighting effects of the May sun and heat. It is a fact, however, that both may be sown on the same piece of land, either separately or mixed, in all respects the same; at the stated time the "*anti-rust*" will stand and the other fall.

#### FRUITS.

Every season is replete with casualties to fruits, by frosts, hail and rain storms, and insects; but certain sections are much more exposed to risk of failure than others. So necessary in filling the complement of home supplies are these products that each farmer should secure some of them, even with a certainty of a constant partial failure of his crops. There are valleys in which spring frosts are inevitable, and thermal belts scarcely ever touched by early spring or autumn frosts; there are wide districts in which fruits are very uncertain and capricious in yield, and large tracts wholly or partially enveloped by water, as the eastern shore of the Delaware, the islands of Lake Erie, the western counties of New York, and the peninsula of Michigan. These districts, with those affected by the Gulf Stream on the Atlantic coast and those favored by the mild climate and favorable aspect of hill slopes in Southern Illinois, Missouri, and Arkansas, constitute the main reliance of city populations for native fruit supplies.

A good supply of fruit will be gathered during the present season. The peach crop of New Jersey, Delaware, and Maryland is above an average, and larger than that of last year. It is also very large in most of the Southern States, and ample in all of them. It is a fair average in Michigan. In most of the Western States the crop will be short, on account of the severe frosts of April, varying from one-half to three-fourths of an average. Less exposed situations—the slopes or summits of elevations—will furnish a large percentage of the product. California reports a moderate degree of abundance, with a better prospect for apples and pears than for peaches. Texas has an abundance of the fruits of that climate. The valley of the Missouri, including the State of Iowa, gives assurance of nearly an average crop.

The prospect for apples and pears appears to be best in the New England States, Ohio, Michigan, and Missouri; a little below an average in the Middle States, with a considerable further reduction in the West. The reports, as a whole, indicate a comparatively small crop of these fruits.

Small fruits have been produced in moderate abundance; but the supply has been quite generally reduced by dry weather.

Insects are swarming almost everywhere this year and reducing the quantity and value of all kinds of fruits. Their ravages are referred to in detail in another section of this report.



*Duplin County, N. C.*—Pear blight very destructive. In one orchard three-fourths of the bearing trees have been destroyed. In a young orchard of 200 trees three years old twenty trees have been destroyed. The Bartlett and the Beurre superfine have withstood its attacks better than other varieties.

*Hinds County, Miss.*—An unusual crop of fruit—apples, pears, apricots, and peaches—is now being shipped. One hundred thousand boxes of fruit will be shipped from Terry this year.

*Tangipahoa Parish, La.*—Peach crop excellent, ten days earlier and fifty per cent. better than the average for the last five years; grapes above an average.

*Cherokee County, Texas.*—Plums more valuable in this county than apples or pears; mine are keeping twenty-five hogs fat.

*Cherokee County, Texas.*—Fruits very abundant; woods full of ripe plums and berries; hogs fat.

*Williamson County, Texas.*—The crop of peaches, plums, and grapes promises to be immense throughout the State; Chickasaw plums (*Prunus chicensa*) now ripe; Hales's early peach by the 10th of June.

*Sangamon County, Ill.*—Apples plenty; peaches one-third of a crop; all small fruits except grapes abundant. Frosts as late as May 9th and 10th. Most varieties of grape-vines were badly winter killed.

*Holt County, Mo.*—Apples and pears were injured by frost; the latter a total failure. Peaches, although in bloom, were not touched, even when ice was formed three-fourths of an inch thick. Peaches are never hurt here by spring frosts, but are by winter freezing.

*Green Lake, Wis.*—Fruits of all the kinds grown here promise an abundant crop, the largest ever grown in the county.

*McLeod County, Minn.*—A large number of apple trees has been brought into the county during the past two years; some are now bearing. Hardy varieties of apples and cherries bid fair to succeed.

*Jefferson County, Kansas.*—A hard frost, April 13th, killed all the fruit on low lands, where many of the oldest orchards are located; but on high lands the crop will be large. One orchard slightly elevated above the Kansas Valley will bear no fruit; all killed by frost.

*Woodson County, Kansas.*—Exposed orchards have fared the best. Trees exposed to the north winds are full of fruit, while those protected by skirts of timber along the valleys never bloomed.

*Anderson County, Ky.*—Grapes were killed by the frost, and the leaves and young branches on the vines were literally blackened, but since the frost more new branches have shot forth, and the blossoms on them give promise of a crop, not, however, as large as the first. In some orchards the peach trees having limbs that were partially broken off by sleet in the winter were not affected by the frost, and peaches are growing finely on them. One gentleman states that there are many such limbs in his orchard loaded with fruit, while on the unbroken and healthy limbs of the same trees the fruit was all killed.

*Salt Lake County, Utah.*—The failure of the apple crop is almost total. The grass-hoppers, which for some years past have mainly taken our fruit crops, have now seriously injured our trees, in some instances killing them outright. Peach, apricot, plum, and pear trees do not appear to have suffered so much, although their fruit has been completely devoured for the same period.

Table showing the condition of the crops, &amp;c., on the 1st day of June, 1871.

STATES.	WINTER WHEAT.		WINTER RYE.		WINTER BARLEY.		SPRING WHEAT.		SPRING BARLEY.		OATS.		CLOVER.		SPRING PASTURE.
	Average compared with last year.	Average condition June 1st.	Average compared with last year.	Average condition June 1st.	Average compared with last year.	Average condition June 1st.	Average sown this spring compared with last.	Average condition June 1st.	Average sown this spring compared with last.	Average condition June 1st.	Average compared with last year.	Average condition June 1st.	Average compared with last year.	Average condition June 1st.	
Maine.....	97	98	98	97							103	103	96	96	101
New Hampshire.....	96	90	101	95							104	104	101	101	97
Vermont.....	96	97	95	97							101	101	99	93	96
Massachusetts.....	97	95	101	97							97	96	98	87	83
Rhode Island.....			102	115							102	106	96	96	84
Connecticut.....	100	101	90	99							102	98	98	84	80
New York.....	101	102	100	103							102	92	97	89	93
New Jersey.....	102	105	101	102							102	84	102	68	80
Pennsylvania.....	98	104	100	104							100	90	100	80	90
Delaware.....	100	102	100	100							100	90	100	80	80
Maryland.....	97	102	97	104							100	84	98	76	84
Virginia.....	101	92	97	100							105	99	101	97	95
North Carolina.....	100	82	98	95							103	99	115	99	102
South Carolina.....	92	73	93	89							104	82	101	86	103
Georgia.....	101	75	99	96							115	104	127	111	111
Florida.....			112	100							140	87	102	108	108
Alabama.....	103	77	102	88							102	103	114	110	103
Mississippi.....	95	96	100	100							106	103	123	115	89
Louisiana.....											105	102			101
Texas.....	103	86	98	93							115	93	103	96	101
Arkansas.....	104	87	100	106							113	103	126	105	118
Tennessee.....	100	74	99	95							116	100	124	100	106
West Virginia.....	106	104	98	99							103	95	104	96	97
Kentucky.....	98	80	99	93							101	97	102	91	97
Missouri.....	110	104	106	107							101	94	105	97	102
Illinois.....	104	106	105	106							100	95	105	105	97
Indiana.....	98	97	98	103							110	94	105	97	97
Ohio.....	106	107	99	103							100	95	100	91	93
Michigan.....	104	110	100	102							105	93	100	95	96
Wisconsin.....	104	107	104	110							109	97	104	100	97
Minnesota.....	110	102	97	100							107	107	102	113	116
Iowa.....	115	110	102	107							105	101	109	101	103
Kansas.....	140	109	110	110							107	107	109	106	111
Nebraska.....	130	108	112	110							116	110	140	110	124
California.....	120	55	105	60							106	107	101	87	85
Oregon.....	98	105	100	103							107	101	105	106	106



## EXTRACTS FROM CORRESPONDENCE.

## TEA CULTURE.

Hon. W. G. Howard writes to this Department as follows, from San Antonio, Texas: The culture of the plant and the manufacture of the tea is a much simpler and easier process than most persons think. Of the hardy nature of the plant you have abundant evidence in those planted out in the gardens at Washington. And from my own experience in many climates of India, from Arracan to the Himalaya Mountains, neither frost nor snow, drought nor rain, sunshine nor shadow, materially injure the "tea plant." Nor is it subject to the visitation of any worm, bug, or disease.

When I first went to India, all knowledge with respect to tea was very scant and limited, and everything had to be done by hand; but afterward, when the capital invested in tea had increased to enormous proportions—indeed, many millions of pounds sterling—the cost of manufacture was much reduced. When I left India the only manual labor was the picking of the leaves, which was best done by women and children. It is true that a man here would cost \$20 or \$25 per month, against \$2 50 per month there; but when you take into consideration the great lack of economy in the management there, the difference would not amount to so much. In India all tools and lead have to be brought from England, and transported on men's backs for many miles; the constant rebuilding of houses, rendered necessary by the white ant and fire, every year or two; the enormous cost of management, which amounts to more than one-half the actual amount spent in the year; the physical inability of the Bengalee coolies to do much labor; the difficulty of procuring labor, and the unhealthy climate, all combine to bring the cost per acre to as much as it would be in America.

The tea once planted only requires to be kept free from weeds, which can be done here with the plow, the same as with Indian corn, and at the same cost. In India they have neither horses nor plows, and all weeding must be done with the hoe in the hands of a lazy and weak coolie. After the tea is pretty well grown, say four or five years old, its own shade pretty much keeps the ground clean.

Should our Government once take hold of the subject, and demonstrate that tea can be grown, and to a profit, the demand for seed alone would soon pay all cost. The yield of seed is, on an average, four "maunds" (a "maund" is 80 pounds) to the acre, and I sold one year from my garden 4,000 "maunds," at 200 rupees per "maund," and could have sold 40,000 "maunds" at the same figure.

## TRIALS OF WHEAT.

*Culpeper County, Va.*—The Touzelle wheat, received from the Department in 1869, one pint, and sowed November 26, 1869, was a complete success; ripened a week earlier than any other kind. I saved nearly one-half bushel from the crop. I gave away some and sowed about four quarts September, 1870, and it is now nearly ripe and the finest wheat I ever saw—admired by all the neighborhood. I believe it will yield at the rate of 30 bushels to the acre, at the very lowest calculation.

*Cherokee County, Ga.*—In the fall of 1868 I received from the Department about one peck of Tappahannock wheat, which I planted on rather poor, high land, and made about 1½ bushels of beautiful wheat.



I planted the  $1\frac{1}{2}$  bushels on good river-land, and raised last year about 16 bushels of the finest wheat ever grown on my plantation. I am well pleased with it, and believe it to be well adapted to this climate, and a great improvement on any we have had in this county. The Mediterranean wheats were not suited to this climate—especially the white; the red bearded did moderately well.

#### WHITE SCHONEN OATS.

Mr. C. H. Stewart, of Mercer County, Missouri, states that from a quart of white Schonen oats, furnished him by this Department, a crop of  $1\frac{1}{2}$  bushels was raised, and that from this crop, as seed, a second year's crop of 18 bushels was harvested. A portion of the second year's crop was destroyed before harvest, otherwise the yield would have been larger.

#### DIVERSITY OF CROPS.

*Columbus, Ga.*—The agricultural industry of this portion of the South is not diversified to the extent that it is hoped the future may realize. Our people yet have "cotton on the brain." Many crops, the yam, Spanish potato, and turnips, which were largely cultivated before emancipation, are greatly neglected. Attention, however, is being directed to minor crops, and a few years may show quite a changed state of affairs, and cotton become of secondary consideration. It is difficult to change the habits of a people *en masse*, and time, together with the conviction that a change will materially benefit their condition, alone can do it. The southern planter who has his corn-crib in Ohio and his smoke-house in St. Louis or Louisville can never prosper; and although *figures* may clearly prove that foreign markets can cheaply supply his wants, the poverty of his pocket presents incontestable proof to the contrary. Our soil is good, our people are intelligent and enterprising, and when their energies are directed to other channels of industry than that of making cotton alone, they will retrieve their fortunes and be again prosperous and happy.

#### DROUGHT IN SOUTHERN CALIFORNIA.

*San Diego, Cal.*—We have had two successive years of unusual drought. A similar period occurred in 1863-'64. No water has been discharged by any rivers opening into the bay or ocean in this part of California for two years, the most of them sinking or drying up fifteen to twenty miles from their mouths. No cereals have matured, either last year or this, within twelve miles of the ocean. At a greater distance than that, and near the mountains, crops are produced, and cattle find pasturage. It is a prevalent belief here, that the approach of rains is announced by a rise in springs and streams. With few exceptions, there has been, during May, whenever clear, a haze dimming or obscuring the view of the mountains and islands twenty miles distant.

#### GRASS AND CLOVER IN THE SOUTH.

*Amite County, Miss.*—I have both tested, and had tested by experienced planters, the "perennial rye grass" you sent me last September, (1870,) and can say from experience and information from others that it is the best grass for pasturage that has yet been introduced into this section. It is no humbug, and it should be cultivated by every planter in this climate.



*Pike County, Ga.*—But little clover in this county previous to the present year. Many farmers have sown small patches the past winter and spring, and it bids fair to be a success.

*Monroe County, Ga.*—Have just commenced the culture of clover and the small patches are doing finely. Have cut  $3\frac{1}{2}$  tons per acre the first mowing.

#### COMMERCIAL FERTILIZERS IN THE SOUTH.

*Macon, Ga.*—To account for the poor condition of cotton in our county this year, we must state that commercial fertilizers have been used to very limited extent. Hardly 1 pound this year for 1,000 pounds last year.

*Newton, Ga.*—Fifty per cent. less fertilizers used than last year in the county. The quantity for the State is about 75 per cent. less, or in the proportion of 65 last year to 16 this year.

*Richland County, S. C.*—From my best information gained from our merchants the amount of fertilizers purchased as compared with last year is only about 16 per cent.

#### MAPLE SUGAR.

*Orange County, Vt.*—Vermont never before witnessed so great a flow of maple-sugar sap as has flowed the past spring. The results are large quantities of sugar and molasses.

*Essex County, Vt.*—Maple sugar is more abundant than ever before known here.

*Warren County, N. Y.*—The best sugar season for many years.

*Genesee County, N. Y.*—The spring of 1870 was a poor one for maple sugar. Probably not more than one-eighth of the usual quantity was made here. The spring of 1871 was much better, but was not a good one.

#### DOGS *vs.* SHEEP.

*Gloucester County, Va.*—In one neighborhood in this county, including three flocks of sheep, 35 per cent. were destroyed by dogs.

*Augusta County, Va.*—About three dogs to every sheep in this county. If our legislature would tax the dogs instead of the sheep, it would soon rid the county of a nuisance, and build up one of the most profitable branches of industry.

*Putney, Vt.*—We were troubled by dogs in this State, until our legislature took the matter in hand, and made the owner or the keeper of a dog pay a good round tax for the animal. That statute has had a splendid effect in relieving the farmers from the depredations of thousands of worthless, mischievous dogs. If other States would adopt a like measure they would soon find their flocks and herds enjoying their inalienable rights throughout their whole domain. The result would be that no good, respectable citizen would keep a mischievous, worthless cur.

*Jefferson County, W. Va.*—The dogs have played havoc with the sheep in this neighborhood within the last six months, having killed or crippled \$250 to \$300 worth in that time. It is high time that a tax on dogs, or some such law, for the protection of sheep owners, was enacted in our State.

#### HOG AND CHICKEN CHOLERA.

*Rankin, Miss.*—A fatal disease prevails among swine in some localities

in this county. Large numbers of hogs and pigs in good condition, as to flesh, are dying. No remedy, as yet, has arrested its progress. Cholera also prevails among hens and chickens, but generally yields to sulphur, pepper, or onions mixed with the food.

*Chatham, N. C.*—Very heavy losses among fowls and turkeys from cholera; ducks and geese not injured. A little tar in the water-trough and feed, or chopped onions with a liberal supply of red pepper in other food, has proved a good preventive. Many have lost every fowl and turkey on their farms.

*Jefferson, W. Va.*—The "chicken cholera" is still killing the fowls in different parts of the county, but the disease is not nearly so violent as it has been.

#### INSECTS.

Mr. Alexander S. Taylor sends to the Department a communication upon the California grasshopper, or Pacific migratory locust, which has been very destructive in all the valley portions of the State, swarms having simultaneously appeared in Salinas, San Joaquin, Los Angeles, and Santa Barbara in May and June. It is similar to that which frequently visits Kansas, Montana, Texas, and Colorado. It appears to be the *Caloptenus spretus* of Uhler, of which mention was made in the monthly report of this Department for February, 1870. It should not be confounded with the wingless grasshopper, or cricket, of Utah and Nevada. The California coast species has wings, and is but one-third the size of the misnamed cricket.

*Boone County, Ill.*—The seventeen-year locusts have made their appearance, and are busy at work on the trees. They appeared in 1837 and 1854 in this county.

*Grundy County, Ill.*—Within the few days preceding June 1, the seventeen-year locusts came out of the ground in such vast numbers as to literally swarm on all the timber in the county.

*Kendall County, Ill.*—The seventeen-year locusts have come again in vast numbers, but as yet have done no damage.

*Lee County, Ill.*—The locusts have appeared in this county. They have done no harm yet, but are quite numerous.

*Peoria County, Ill.*—Locusts numerous, but had done no harm up to June 2.

*Putnam County, Ill.*—Locusts have appeared in legions.

*Linn County, Iowa.*—Locusts in large numbers.

*Mercer County, Ohio.*—The Colorado potato bug destroying the potatoes.

*Lucas County, Ohio.*—The Colorado potato bugs are destroying the potatoes. Some have plowed up their potatoes; others have planted in corn, so that it may have a start if the potatoes prove a failure; others are trying to destroy the bugs.

*Van Wert County, Ohio.*—Potato bugs bad. One farmer says that chickens keep his potatoes free.

*Erie County, Ohio.*—Potato bug doing some damage.

*Wayne County, Ohio.*—Colorado potato bug has appeared.

*Logan County, Ohio.*—Colorado potato bug doing much damage.

*Franklin County, Ohio.*—Colorado potato bug has made its appearance in all parts of the county, but has done no serious damage as yet.

*Greene County, Ohio.*—The Colorado potato bug has appeared.

*Wood County, Ohio.*—The Colorado potato bug abundant and destructive, taking nearly all the crop as fast as it comes up.

*Adams County, Ind.*—Potato bug very destructive.

*Crawford County, Ind.*—Colorado bug destroying most of the potatoes.

*Floyd County, Ind.*—Colorado bug in great numbers. The best remedy known here is a strong decoction of dog fennel. Some use Paris green, sulphur, &c.

*Howard County, Ind.*—Insects have done some harm, especially the *Doryphora decemlineata*.

*Marshall County, Ind.*—The Colorado bugs are worse than ever; they will probably destroy the entire crop.

*Pike County, Ind.*—The potato bug is troublesome.

*Union County, Ind.*—The Colorado bug takes the potatoes as fast as they come through the ground, and then deposits its eggs on the red clover.

*Jennings County, Ind.*—Potatoes being eaten up by the Colorado bug.

*Boone County, Ill.*—Potatoes being entirely destroyed by the bugs. In some portions of the county no Irish potatoes will be planted, for fear of the bugs.

*De Kalb County, Ill.*—Potatoes will fall a prey to the Colorado bug, unless the season be wet.

*Edwards County, Ill.*—We have a new destroyer of sweet potatoes and cabbage. It is the size of a lady-bird, and of strange shape, and of various brilliant colors. It eats close down. The Colorado bug is very destructive this season.

*Green County, Ill.*—Bugs bad in potatoes.

*Grundy County, Ill.*—Colorado bugs and chinch bugs more numerous than ever known so early in the season, and very destructive.

*Kendall County, Ill.*—Potato bugs are using up the potatoes in spite of all remedies. Poison is resorted to without effect.

*Lee County, Ill.*—Potato bug very numerous, and destroying the tops nearly as fast as they make their appearance.

*Montgomery County, Ill.*—Colorado bugs very abundant. Paris green has been found to be an effectual remedy in every case where tried. Great care should be used in applying it, for if too strong it will destroy the leaves.

*Mercer County, Ill.*—Colorado beetle more abundant than for three years. The mild winter has evidently been favorable to them.

*Ogle County, Ill.*—The Colorado bug is ravaging the potatoes. Farmers pick them off the vines, and use Paris green mixed with flour or ashes. Other insects more numerous than usual.

*Peoria County, Ill.*—Potato bugs on hand early.

*Putnam County, Ill.*—Colorado bugs in legions.

*Sangamon County, Ill.*—Colorado bugs numerous, but potatoes will yield well nevertheless.

*Stephenson County, Ill.*—Potato bugs in excess of last year, and making sad havoc.

*Scott County, Ill.*—Potato bugs threaten to take the crop.

*Buchanan County, Iowa.*—The potato bug has made its appearance in great numbers. Fears are entertained of a failure of the crop.

*Clinton County, Iowa.*—Colorado bug very destructive. Scarcely one-fourth the crop will be saved.

*Linn County, Iowa.*—Colorado bugs in large numbers. They prefer early varieties of potatoes.

*Muscatine County, Iowa.*—Colorado bugs at work.

*Chariton County, Mo.*—The Colorado bug is mowing the Irish potatoes, and the crop will be a failure. The bug eats all the vine but the stalk.



*Phelps County, Mo.*—The Colorado bug has done slight injury to the potatoes.

*Osage County, Mo.*—The potato bug has made its appearance at Linnwood.

*Franklin County, Mo.*—The Colorado bug is very destructive to potatoes at Beaufort.

*Columbia County, Wis.*—The present prospect is that the Colorado bug will entirely ruin the potato crop. They have never been so plenty so early in the season.

*Dane County, Wis.*—The Colorado beetle is in greater numbers than in any former year. Hand-picking and Paris green are generally the means relied on to kill them off. Many farmers are giving up the crop; some have plowed up their potatoes.

*Fond du Lac County, Wis.*—Myriads of potato bugs at work. One farmer picked 2,400 from half an acre in an afternoon. I keep mine clear with one part Paris green, eight parts ashes, and eight parts flour sprinkled on the vines when the dew is on.

*Green Lake County, Wis.*—Potato bugs plenty. Unless great care is taken the entire crop will be destroyed.

*Iowa County, Wis.*—The potato bug is more numerous this year than ever before.

*Juneau County, Wis.*—Potatoes nearly all destroyed by the Colorado bug, whose appearance is much earlier and in greater numbers than in any previous year. It is feared that the entire crop will be destroyed.

*Kenosha County, Wis.*—The Colorado bug threatens to destroy the crop.

*Ozaukee County, Wis.*—The potato bug is in full operation. The young sprouts are eaten before they have a chance to leaf. In former years it was chiefly the brood that destroyed the crop, commencing after the bushes were six or eight inches high, but this year the old fellows that remained over winter are doing the job effectually. Most of our farmers are plowing up the ground and planting it in corn; others are waiting to see what the bugs will do, and will put in buckwheat if the potatoes should be destroyed. At present it looks as if we would not get a bushel, except from the gardens. Lake Michigan is represented by our fishermen to be filled with the bugs, going over, perhaps, to Michigan.

*Outagamie County, Wis.*—Potato bugs more numerous than ever. They eat the vine down to the ground. Thirty have been counted on one vine two inches high. No Paris green to be had, and the bugs have their own way.

*Portage County, Wis.*—Potato bugs fearfully numerous.

*Richland County, Wis.*—Potato bugs very numerous.

*St. Croix County, Wis.*—Colorado bugs are injuring potatoes and tomatoes.

*Sheboygan County, Wis.*—The potato bug has appeared by the million.

*Carver County, Minn.*—The prospect for the potato crop is bad. Bugs plenty and will damage, if not ruin, the crop.

*Fillmore County, Minn.*—The Colorado bug will nearly, if not altogether, destroy the crop.

*Houston County, Minn.*—Potato bugs by the bushel.

*Kandoyoke County, Minn.*—Potato bugs very bad.

*Meeker County, Minn.*—Potato bugs (*deceimlineata*) appeared June 1. The bugs have almost covered the potatoes.

*Ramsey County, Minn.*—The potato bug has appeared again, and threatens to destroy the crop.

*Barry County, Mich.*—Colorado bug very destructive to potatoes, tomatoes, and all garden plants. The potato crop is likely to be used up.

*Bay County, Mich.*—Farmers are doing but little toward planting potatoes. The bugs are very thick, coming out of the ground by hundreds, apparently more plentiful than ever. Paris green, mixed with plaster, ashes, and flour, is being used as a preventive.

*Cass County, Mich.*—Potato bugs in countless numbers.

*Kent County, Mich.*—Potato bugs very destructive.

*Kalamazoo County, Mich.*—Potato beetles without number. Remedies for extermination and protection alike fail, and the bug roams at will.

*Monroe County, Mich.*—The prospect is that one-half the crop will be destroyed by the potato bug.

*Newaygo County, Mich.*—Potato bugs everywhere. The whole crop is threatened.

*Ottawa County, Mich.*—We had a few potato bugs last year, but this year we have myriads of them. We expect no potatoes.

*Van Buren County, Mich.*—The potato bug is destroying the whole crop, so far as heard from, in this county, and its ravages are general throughout the State.

*Norfolk County, Mass.*—About one-fourth of the apple trees bloomed, compared with last year, and in many instances the entire crop has been destroyed by the canker-worm. Some orchards present a sad sight, and everything around them is alive with worms. Large and thrifty trees are being cut down as worthless.

*Queen Anne County, Md.*—Peach trees bloomed early and set full, but within the last two weeks fully one-half has dropped off. This is generally attributed to hot, dry weather; but I have cut open about a hundred of these dropped peaches, and in every instance found a worm similar to the apple-worm. The fruit remaining on the trees is very fine, double the usual size at this season.

*Henry County, Ohio.*—Foliage of apple trees so badly eaten by black measuring-worms that but 25 per cent. of the apples can be perfected. Many elm and shellbark hickories are as bare as in autumn.

*Van Wert County, Ohio.*—Measuring-worms are in great force, consuming the foliage of fruit and forest trees.

*Defiance County, Ohio.*—The measuring-worm is making sad havoc with the fruit trees. In some localities trees are nearly stripped of leaves and the fruit is dropping off.

*Darke County, Ohio.*—The fruit and the fruit trees are being much injured by the black caterpillar or measuring-worm.

*Crawford County, Ohio.*—Crop reduced, perhaps one-half, by frost, April 30. Worms are taking the leaves from many fruit and forest trees.

*Graves County, Ky.*—Caterpillars have injured the apple crop. They are very numerous. They begin on the leaves, and next take the fruit. They are on the decline now, and are webbing. They stopped a passenger train a few days ago.

*McCracken County, Ky.*—Caterpillars are so numerous that it is often necessary to clear the railway tracks before the trains can proceed.

*Adams County, Ind.*—A worm resembling the caterpillar is stripping all the foliage off the trees. They are very small at first, but grow fast, and are now an inch and a half long. Fruit and forest trees are considerably damaged by them.

*Massac County, Ill.*—Apple crop seriously injured by the caterpillar. It appeared April 15th and left May 20th.

*Des Moines County, Iowa.*—More frosts in May than for years past. These and the codling-moth have nearly ruined the apple crop.



*Jefferson County, Iowa.*—The canker-worm is doing great damage to some orchards.

*Kings County, N. Y.*—The cabbage-worm has made its appearance by thousands; their first appearance here upon early cabbage. We had them last year on late cabbage and cauliflower, and did much damage.

#### MISCELLANEOUS ITEMS.

*Plaquemines Parish, La.*—Rice crop ten per cent. below the average last year.

*East Baton Rouge Parish, La.*—Irish potatoes planted 10th of January; marketed 19th of April.

*Morehouse Parish, La.*—Crops utterly destroyed by a hail-storm the 27th of April. Hail-stones eight to twenty inches in circumference.

*Matagorda County, Texas.*—Schonen oats have done splendidly, although sown too late, and suffered two months' drought; did not rust, while other kinds did; crop prospects fine.

*Lavaca County, Texas.*—Sheep are doing well; sheared twice a year, April and November.

*Nueces County, Texas.*—Wool-clip unusually heavy this season; some few wool-growers shear but once a year; the Mexicans shear spring and fall.

*Live Oak County, Texas.*—Have had severe drought for six months past; recently some fine showers; some stock have died for want of food and water.

*Bexar County, Texas.*—Fine rains over nearly all of Western Texas from 18th to 24th of May.

*Galveston County, Texas.*—Schonen oats, received from the Department, and sown February 14, were ripe for harvest May 14; some stalks measured four feet in length, and had the heaviest heads we ever saw. The variety seems to be well adapted to this climate.

*Titus County, Texas.*—The Hamburg oats received from the Department promise well; the olive-shaped radish a success.

*El Paso County, Washington Ter.*—Winter and spring have been exceedingly wet; have not had (May 20) twenty sunny days since the middle of November, 1870; ground too wet for tilling.

*Walla-Walla County, Washington Ter.*—Farmers and stock-raisers of the Great Columbian plains are greatly enlarging their farms and herds of cattle and sheep, in consequence of the building of the North Pacific Railroad.

*Thurston County, Washington Ter.*—Winter has been mild and wet; spring very wet; has been too wet to work for a week past, (May 21.)

*Lewis and Clarke County, Montana Ter.*—Prospect for good crops favorable; the unusual spring rains have brought out the native grasses in fine growth.

*Deer Lodge County, Montana Ter.*—Coldest May ever experienced here; crops backward; grass better than usual, owing to excess of cloudy and damp weather.

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#### BEET-SUGAR MANUFACTURE.

George T. Chapman, of New York, who has been examining the process of beet sugar manufacture in Europe, informs us that prominent merchants and capitalists in New York will organize a company; to

operate on an extensive scale in Texas, if that region proves to be favorable to saccharine development of the beet. He reports details of the success of Mr. James Duncan, of Lavenham, England, as follows: Capital employed, £12,000. Beets used this year, 6,000 tons; sugar made, 540 tons; cost of beets, £6,000; factory expenses for 110 days, £4,400; interest, repairs, &c., £2,000; total expenses, £12,400. The receipts for 540 tons of sugar, at £43 per ton, £23,220; 1,200 tons pulp sold to farmers, at 12s. per ton, £720; total receipts, £23,940; profit, £11,540. The average percentage of sugar obtained from these beets by Dr. Voelcker's analysis was 12, but the percentage actually obtained at Lavenham was 9, by the process of single carbonitation. This process is stated to be not equal to Schrosenbach's alcoholic process. Carbonic acid gas is passed through the sirup after the first defecation with lime and first boiling down. It is then filtered through bone black once, and is then ready to boil down to the granulating point. Mr. Chapman brought home a bag of this sugar for samples, equal to the best refined white cane sugar, and made in England at two-thirds the cost of the latter.

A small *brochure*, the work of a Belgian agriculturist in England, just issued, upon the "beet-root sugar question," represents the manufacture of sugar as favoring greatly the interests of small farmers of Belgium. The manufacturers are generally proprietors of 1,000 to 2,000 acres, of which they farm 200 to 400 acres, and sow one-fourth in beet root. Their tenants are restricted from growing the beet in larger proportion, as a decrease in the quantity of sugar results from a rotation of less than four years. The author, E. F. DeMean, makes the following statement of the expense of growing beets in West Flanders:

Net value of an acre sold "on foot".....	£20
Rent and taxes.....	£2 10 0
Plowing and harrowing.....	1 5 0
Manure.....	2 5 0
Seed and sowing.....	0 10 0
Weeding, &c.....	1 10 0
	<hr/> 8
Leaving a net profit of.....	<hr/> 12
	<hr/>

## THE CLIMATE OF SANTA BARBARA, CALIFORNIA. ,

The salubrity of the climate of some portions of the Pacific coast has become proverbial. Dryness, mildness, and equability are requisites of a climate which shall be promotive of health, and these are possessed by certain localities of California in a degree unequaled on the continent. The attention of the convention of the American Medical Association, recently in session at San Francisco, was called to a series of thermometrical observations made at Santa Barbara during the year commencing April 1, 1870, and ending March 31, 1871. This town lies on the coast, in Southern California, in latitude 34 degrees, 10 minutes, which very nearly corresponds to that of Wilmington, North Carolina, on the Atlantic coast. The thermometrical observations referred to embrace the weekly average for the year, the monthly mean, the monthly mean at 2 o'clock p. m., and the warmest and coldest days in each month, and are as follows:

## WEEKLY AVERAGE.

Month.	7th.	14th.	21st.	28th.	Month.	7th.	14th.	21st.	28th.
April .....	59.00	59.00	62.75	61.75	October ...	78.71	66.80	67.76	60.57
May .....	61.66	63.00	60.75	64.00	November .	59.52	59.14	66.62	59.60
June .....	63.00	65.25	64.75	69.75	December .	55.38	52.57	47.62	52.90
July .....	74.35	72.33	70.00	69.90	January ...	56.89	54.00	52.63	54.50
August .....	72.20	73.43	72.41	70.45	February ..	53.09	53.57	52.33	54.43
September .	67.85	78.71	67.71	68.05	March .....	59.09	56.68	54.59	63.33

## MONTHLY MEAN—AVERAGE OF THREE OBSERVATIONS DAILY.

April .....	60.62	October .....	65.96
May .....	62.35	November .....	61.22
June .....	65.14	December .....	52.12
July .....	71.49	January .....	54.51
August .....	72.12	February .....	53.35
September .....	68.03	March .....	58.42

Average temperature for the year, 60.20.

## MONTHLY MEAN AT TWO O'CLOCK.

April .....	65.87	October .....	72.28
May .....	70.75	November .....	71.38
June .....	75.87	December .....	60.48
July .....	79.84	January .....	63.92
August .....	79.41	February .....	58.36
September .....	79.41	March .....	69.71

Average temperature for the year, 70.60.

## MAXIMUM AND MINIMUM DAYS.

## COLDEST.

April 12th .....	60
May 15th .....	66
June 1st .....	69
July 26th .....	76
August 11th .....	77
September 23d .....	66
October 23d .....	60
November 7th .....	64
December 15th .....	52
January 11th .....	56
February 22d .....	42
March 13th .....	56

## WARMEST.

April 16th .....	74
May 23d .....	77
June 3d .....	80
July 11th .....	84
August 8th .....	86
September 27th .....	90
October 20th .....	92
November 20th .....	87
December 28th .....	71
January 3d .....	76
February 28th .....	71
March 27th .....	83

Coldest day in the year, February 22, 42; warmest day in the year, October 20, 92. Variation, 50.

The range between the hygrometer and the thermometer at 2 o'clock p. m., at Santa Barbara, is usually about four degrees, except on foggy or rainy days, when it is sometimes identical. During the prevalence of a high warm wind the range is extended at times to ten and even twenty degrees; but this does not happen oftener than once or twice a year, and then only for a short period, about the time of the equinoxes.



## CLIMATE OF WESTERN OHIO.

*The following is a record of temperature and rain-fall of certain stations in Northeastern Ohio for the years 1868, 1869, and 1870.*

## KELLEY'S ISLAND.

Months.	1868.		1869.		1870.	
	Mean temperature.	Rain and melted snow.	Mean temperature.	Rain and melted snow.	Mean temperature.	Rain and melted snow.
	Degrees.	Inches.	Degrees.	Inches.	Degrees.	Inches.
January.....	21.7	1.00	33.2	0.71	29.3	4.95
February.....	23.9	0.83	30.7	2.67	27.7	1.00
March.....	36.2	3.91	29.7	2.45	-----	-----
April.....	42.2	1.83	45.0	3.22	48.4	1.89
May.....	55.9	2.86	57.1	5.11	63.9	1.27
June.....	68.2	5.98	67.1	6.07	73.1	3.85
July.....	81.7	0.53	73.4	1.39	76.6	6.32
August.....	73.0	3.78	74.2	1.50	75.5	1.52
September.....	63.9	3.29	67.5	1.99	70.5	1.50
October.....	50.8	0.78	47.0	1.93	57.8	3.13
November.....	41.8	2.24	36.5	3.55	43.2	1.64
December.....	27.1	0.45	32.3	1.99	29.9	2.23
Average.....	48.8	-----	49.4	-----	-----	-----
Total.....	-----	27.48	-----	32.58	-----	-----

## SANDUSKY.

January.....	19.5	0.93	34.3	1.22	30.5	7.30
February.....	23.8	0.88	32.5	3.45	25.5	1.22
March.....	38.2	5.96	30.1	2.67	33.2	3.55
April.....	43.8	4.13	46.4	3.22	49.7	2.52
May.....	56.4	6.11	57.6	7.99	71.7	2.17
June.....	68.5	13.47	66.4	6.90	73.1	5.69
July.....	82.9	0.48	71.9	5.52	75.4	5.28
August.....	70.3	5.23	73.3	1.71	73.3	1.72
September.....	57.6	3.20	64.2	3.46	64.7	1.83
October.....	49.0	1.12	44.9	2.96	55.7	4.64
November.....	39.7	2.57	36.4	4.26	41.8	2.95
December.....	25.1	0.84	33.6	2.46	29.7	2.48
Average.....	47.9	-----	49.3	-----	52.0	-----
Total.....	-----	44.92	-----	45.82	-----	41.35

## TOLEDO.

Months.	1868.		1869.		1870.	
	Mean tempera- ture.	Rain or melted snow.	Mean tempera- ture.	Rain or melted snow.	Mean tempera- ture.	Rain or melted snow.
	<i>Degrees.</i>	<i>Inches.</i>	<i>Degrees.</i>	<i>Inches.</i>	<i>Degrees.</i>	<i>Inches.</i>
January .....	21.0	1.25	33.0	1.69	29.0	4.50
February .....	23.1	1.06	30.3	3.44	28.1	1.69
March .....	38.3	8.75	28.3	3.63	32.7	3.31
April .....	42.5	3.38	45.8	4.99	50.8	2.00
May .....	58.0	5.31	57.4	5.75	.....	.....
June .....	68.1	8.19	66.6	8.25	72.6	4.06
July .....	79.7	2.50	72.5	2.63	.....	.....
August .....	69.8	4.44	73.1	0.63	.....	.....
September .....	59.9	2.50	64.8	1.63	.....	.....
October .....	47.9	1.63	44.3	2.81	.....	.....
November .....	39.5	2.88	34.8	4.56	.....	.....
December .....	25.2	1.06	31.4	2.46	.....	.....
Average .....	47.7	.....	48.5	.....	.....	.....
Total .....	.....	42.95	.....	42.47	.....	.....

## KENTON.

January .....	27.5	2.44	.....	.....	33.8	8.88
February .....	31.2	1.72	.....	.....	31.5	1.98
March .....	39.8	12.72	.....	.....	35.4	7.70
April .....	43.8	2.44	52.1	4.03	47.2	2.55
May .....	57.3	9.00	63.0	16.75	68.1	1.35
June .....	69.0	7.41	72.6	8.38	77.1	5.51
July .....	87.3	4.25	77.7	8.50	84.2	3.63
August .....	77.2	4.56	79.8	1.13	77.1	1.90
September .....	63.9	8.19	67.9	3.10	71.9	7.65
October .....	50.7	2.13	50.4	3.10	51.8	4.70
November .....	.....	.....	39.5	3.04	42.3	1.75
December .....	.....	.....	38.0	3.63	31.5	5.08
Average .....	.....	.....	.....	.....	54.3	.....
Total .....	.....	.....	.....	.....	.....	52.68

## URBANA.

Months.	1868.		1869.		1870.	
	Mean temperature.	Rain and melted snow.	Mean temperature.	Rain and melted snow.	Mean temperature.	Rain and melted snow.
	<i>Degrees.</i>	<i>Inches.</i>	<i>Degrees.</i>	<i>Inches.</i>	<i>Degrees.</i>	<i>Inches.</i>
January .....	21.8	2.44	33.4	1.50	29.9	6.66
February .....	25.1	1.03	32.9	3.40	29.1	2.06
March .....	42.6	7.51	32.0	5.73	35.3	4.27
April .....	46.7	3.35	48.4	2.43	53.8	1.16
May .....	60.2	6.19	59.1	7.09	65.6	0.64
June .....	69.6	10.38	68.8	2.49	71.0	2.48
July .....	80.5	1.88	72.8	6.53	76.3	2.67
August .....	71.5	5.21	73.9	1.01	73.1	2.33
September .....	60.5	3.81	65.2	3.32	69.0	0.44
October .....	49.9	1.17	43.7	1.89	54.9	4.07
November .....	40.4	1.77	34.5	4.21	40.4	1.90
December .....	25.7	1.57	31.5	3.12	26.9	3.10
Average .....	49.5	-----	49.6	-----	52.1	-----
Total .....	-----	46.31	-----	42.72	-----	31.75

## SUMMARY.

Stations.	1868.		1869.		1870.	
	Average temperature.	Total rain-fall.	Average temperature.	Total rain-fall.	Average temperature.	Total rain-fall.
Kelley's Island .....	48.8	27.48	49.4	32.58	* .....	* .....
Sandusky .....	47.9	44.92	49.3	45.82	52.0	41.35
Toledo .....	47.7	42.95	48.5	42.47	* .....	* .....
Kenton .....	* .....	* .....	* .....	* .....	54.3	52.68
Urbana .....	49.5	46.31	49.6	42.72	52.1	31.75

\* Record incomplete.

## MARKET PRICES OF FARM PRODUCTS.

Articles.	May.	June.
NEW YORK.		
Flour, State .....	per barrel..	
western .....	do.	
Wheat, No. 1 spring .....	per bushel..	
No. 2 spring .....	do.	
winter and amber western .....	do.	
Corn, new western, mixed .....	do.	
old western, mixed .....	do.	
Rye .....	do.	
Barley .....	do.	
	\$5 75 to \$6 70	\$5 60 to \$6 80
	6 10 to 9 00	5 60 to 9 00
	1 47 to 1 50	1 49 to 1 51
	1 43 to 1 45	1 46 to 1 49
	1 50 to 1 53	1 68 to 1 69
	76 to 78	70 to 75
	79	-----
	Nominal.	Nominal.
	Nominal.	Nominal.



## Market prices of farm products—Continued.

Articles.	May.	June.
NEW YORK—Continued.		
Oats, western, mixed .....per bushel..	\$0 65 to \$0 68	\$0 64½ to \$0 67
State.....do.....		
Hay, shipping qualities .....per ton..	22 30 to 29 00	19 00 to 20 00
prime.....do.....	24 00 to 29 00	22 00 to 26 00
Pork, mess .....per barrel..	18 00 to 18 75	15 87 to 16 00
prime mess .....do.....	15 00 to 16 25	13 00 to 14 75
Beef, mess .....do.....	10 00 to 15 00	10 00 to 15 00
extra.....do.....	15 00 to 17 50	15 00 to 17 50
Lard, extra .....per pound..	10½ to 11½	9½ to 10¾
Butter, western .....do.....	12 to 30	11 to 20
State.....do.....	20 to 34	15 to 24
Cheese, dairy .....do.....	7 to 12	5 to 12
factory.....do.....	8 to 15	8 to 13½
Cotton, ordinary .....do.....	10½ to 13½	13½ to 15½
middling.....do.....	14 to 16½	16½ to 19½
Tobacco, sound lugs, light grades .....do.....	5½ to 5¾	5½ to 6
sound lugs, heavy grades .....do.....	6 to 6½	6½ to 6¾
common leaf, light grades .....do.....	6 to 7¼	6¼ to 7¼
common leaf, heavy grades .....do.....	6¾ to 7¾	6¾ to 7¾
Wool, combing fleece .....do.....		
extra pulled .....do.....	47½ to 52½	48 to 52
Texas, common to medium.....do.....	25	35
California, common.....do.....	24 25	37 to 38½
BOSTON.		
Flour, western superfine.....per barrel..	6 00 to 6 25	5 75 to 6 00
extra.....do.....	7 50 to 7 75	6 50 to 8 00
choice.....do.....	7 50 to 10 75	8 25 to 10 50
Corn, yellow .....per bushel..	80 to 82	81 to 82
mixed .....do.....	77½ to 80	78 to 80
Oats.....do.....	63 to 69	69 to 73
Rye.....do.....	1 10 to 1 20	1 18 to 1 25
Barley.....do.....	95 to 1 20	90 to 1 10
Pork, mess.....per barrel..	17 50 to 18 00	14 50 to 15 00
prime.....do.....	20 00 to 20 50	17 50 to 18 00
Beef, mess .....do.....	12 00 to 16 00	12 00 to 14 00
extra mess .....do.....	16 00 to 18 00	15 00 to 16 50
Lard.....per pound..	12 to 14¾	11 to 11½
Butter, New York and Vermont.....do.....	15 to 35	18 to 25
Canada.....do.....	15 to 20	18 to 25
western.....do.....	12 to 15	15 to 24
Cheese, eastern factory .....do.....	10 to 15½	12 to 15
Ohio factory.....do.....	12 to 15	13 to 14
Hay, prime.....per ton..	27 00 to 29 00	
Wool, western .....per pound..	50 to 53	52½ to 57½
combing and delaine fleeces .....do.....	50 to 59½	45 to 56
tub .....do.....	43 to 91	52 to 85
pulled .....do.....	40 to 57½	24 to 60
CHICAGO.		
Flour, winter, extras .....per barrel..	6 50 to 8 50	6 50 to 8 50
spring, extras .....do.....	4 00 to 7 00	5 25 to 7 00
Wheat, No. 1 spring .....per bushel..	1 24½ to 1 25½	1 27½ to 1 28½
No. 2 spring .....do.....	1 22¾ to 1 23¾	1 26¼ to 1 27
No. 3 spring .....do.....	1 19½	1 20 to 1 21½
Corn, No. 2 .....do.....	52½ to 54½	51½ to 52
rejected .....do.....	52 to 52¾	49¾ to 50
no grade.....do.....	50	
Oats, No. 2 .....do.....	46½ to 49½	47¾ to 49½
rejected .....do.....	44½	45½ to 46

## Market prices of farm products—Continued.

Articles.	May.	June.
CHICAGO—Continued.		
Hay, timothy and clover, (on track)..per ton..	\$14 00 to \$15 00	\$14 00 to \$15 00
prairie.....do.....	10 00 to 12 00	9 00 to 10 50
Pork, mess.....per barrel..	17 75 to 18 25	14 50 to 15 25
prime mess.....do.....	15 00	
Beef, mess.....do.....	12 50 to 13 00	12 00 to 12 50
extra mess.....do.....	14 00 to 14 50	14 00 to 14 50
Lard.....per pound..	11 to 11½	9½ to 9½
Butter, firkin and tub.....do.....	10½ to 20	8 to 18
extra.....do.....	35 to 37	
Cheese, New York factory.....do.....	18 to 19	14 to 15
western.....do.....	15 to 16	12 to 13
western reserve.....do.....		
Wool, medium fleece.....do.....	38 to 47	32 to 44
unwashed medium.....do.....	33 to 35	20 to 33
tub.....do.....		40 to 54
CINCINNATI.		
Flour, family.....per barrel..	\$6 25 to \$6 50	6 75 to 6 95
extra.....do.....	6 00 to 6 25	6 60 to 6 75
superfine.....do.....	5 35 to 5 60	6 00 to 6 15
low grades.....do.....	5 00 to 5 30	5 50 to 5 80
Wheat, No. 1 white.....per bushel..		1 50 to 1 55
No. 2 white.....do.....		1 45 to 1 50
No. 1 red.....do.....	1 36 to 1 37	1 48 to 1 46
No. 2 red.....do.....	1 33 to 1 34	
Corn, No. 1.....do.....	57 to 58	55
new ear.....do.....	57	53
Rye, No. 1.....do.....	1 00 to 1 02	1 05
No. 2.....do.....	98 to 1 00	1 00
rejected.....do.....		
Barley, No. 1.....do.....	1 10 to 1 12	1 05 to 1 08
No. 1 State.....do.....		95 to 1 00
Oats, No. 1 mixed.....do.....	54 to 55	54 to 55
No. 2 mixed.....do.....	52 to 54	52 to 54
Hay, tight-pressed.....per ton..	17 00 to 21 00	15 00 to 21 00
loose.....do.....	18 00 to 25 00	18 00 to 25 00
Pork, mess.....per barrel..	18 00 to 18 25	16 00
prime mess.....do.....		
Lard, prime steam.....per pound..		
Butter, choice Ohio.....do.....	20 to 28	17 to 22
fair to good.....do.....	17 to 20	13 to 14
Cheese, western reserve.....do.....	13½ to 14	10 to 11
factory.....do.....	15 to 15½	12 to 12½
Cotton, ordinary.....do.....	6 to 12½	11½ to 14½
middling.....do.....	13 to 14½	15½ to 18
Tobacco, lugs, West Virginia.....do.....	5½ to 7½	4½ to 7½
lugs, Kentucky.....do.....	6½ to 10	7 to 12
common to medium leaf, West Virginia.....per pound..	7½ to 10	7½ to 10
common to medium leaf, Ky.....do.....	12 to 14	10½ to 15
Wool, tub-washed.....do.....	48 to 50	43 to 48
fleece-washed.....do.....	42 to 47	38 to 50
unwashed.....do.....	28 to 36	28 to 38
pulled.....do.....	38 to 40	38 to 40
ST. LOUIS.		
Flour, superfine.....per barrel..	5 00 to 5 40	5 00 to 5 25
extras.....do.....	5 50 to 6 85	5 75 to 7 00
choice.....do.....	8 00 to 8 50	7 25 to 8 75

## Market prices of farm products—Continued.

Articles.	May.	June.
ST. LOUIS—Continued.		
Wheat, spring.....per bushel..	\$1 20 to \$1 35	\$1 00 to \$1 30
winter No. 1.....do.....	1 60 to 1 65	1 60 to 1 65
winter No. 2.....do.....	1 50	1 55 to 1 60
winter No. 3.....do.....	1 45	1 43 to 1 50
red.....do.....	1 30 to 1 55	1 35
Corn, mixed.....do.....	48 to 59	49 to 33½
yellow.....do.....	60	51 to 59
Rye.....do.....	75 to 91	75 to 89
Barley, winter.....do.....	92½ to 1 25	88 to 1 00
spring.....do.....	95 to 1 25	55 to 1 00
Oats, mixed.....do.....	49 to 56½	48 to 56½
yellow.....do.....	46 to 58	56 to 57
Hay.....per ton..	15 00 to 25 00	16 00 to 23 00
Pork, mess.....per barrel..	17 50 to 18 50	16 00 to 16 75
Lard, tierce.....per pound..	10 to 11½	8 to 10½
keg.....do.....	11½ to 12½	10½ to 11½
Butter, choice.....do.....	26 to 28	17 to 20
fair to medium.....do.....		13 to 15
Cheese, factory.....do.....	17 to 19	14½ to 16
Cotton, middling.....do.....	13½ to 14½	15 to 15½
Tobacco, sound lug.....per cwt..	3 50 to 5 50	3 50 to 5 75
common leaf.....do.....	5 50 to 6 50	5 75 to 6 75
medium leaf.....do.....	6 50 to 7 50	6 75 to 7 75
Wool, tub-washed.....per pound..	48 to 53	50 to 58½
fleece-washed.....do.....	32 to 38	38 to 58
combing.....do.....	33 to 38	38 to 41
pulled.....do.....		43 to 45
NEW ORLEANS.		
Flour, superfine.....per barrel..	5 65 to 6 00	6 12½ to 6 25
extras, (according to grade).....do.....	6 25 to 8 75	6 50 to 10 50
Corn, mixed.....per bushel..	70 to 71	70 to 76
yellow.....do.....	71 to 72	75
white.....do.....	72 to 76	76 to 78
Oats, choice.....do.....	64 to 65	65
Hay, choice.....per ton..	23 00 to 24 00	24 00 to 25 00
prime.....do.....	20 00 to 22 00	23 00 to 24 00
Pork, mess.....per barrel..	19 00 to 19 50	16 50 to 17 50
Lard, tierce.....per pound..	11 to 11½	11 to 11½
keg.....do.....	12½ to 12¾	12 to 12¾
Butter, choice western.....do.....		22 to 26
choice northern.....do.....	42 to 43	34 to 35
common northern.....do.....		
Cheese, choice factory.....do.....	16 to 17½	15 to 16
western reserve.....do.....	14	13 to 14
Cotton, ordinary.....do.....	10½ to 11	12 to 13
low middling.....do.....	13½ to 14	15 to 15½
middling.....do.....	14½ to 15½	16 to 16½
Tobacco, lugs.....do.....	5½ to 7	5½ to 6½
low leaf.....do.....	7 to 7½	6½ to 7½
medium leaf.....do.....	7½ to 8¼	7½ to 8
SAN FRANCISCO.		
Flour, superfine.....per barrel..	6 25 to 6 75	6 50
extras.....do.....	6 75 to 7 75	7 00 to 8 25
Wheat, State.....per cental..	2 70 to 2 80	2 75 to 2 90
Oregon.....do.....	2 55 to 2 60	2 40 to 2 62½
Corn, white.....do.....	2 45 to 2 50	2 25 to 2 35
yellow.....do.....	2 45 to 2 50	2 25 to 2 35



*Market prices of farm products—Continued.*

Articles.	May.		June.	
SAN FRANCISCO—Continued.				
Hay, State.....per ton.....	\$16 50	to\$22 00	\$14 00	to\$20 00
Pork, mess.....per barrel.....		26 00		26 00
prime.....do.....		25 00		22 50
Beef, mess.....do.....	14 00	to 18 00	14 00	to 17 50
Lard.....per pound.....	14	to 16	14	to 16
Butter, State.....do.....	25	to 32½	25	to 32½
Oregon.....do.....	18	to 23		
overland.....do.....			25	to 30
Cheese.....do.....	10	to 14	16	to 17
Wool, choice.....do.....	30½	to 32	30	to 33½
inferior and medium.....do.....	27	to 29	20	to 28

## AGRICULTURE IN ITALY.

The kingdom of Italy now embraces an area of 118,000 square miles, and a population of 26,000,000.

In 1865 the surface of Italy, including Venetia and the Roman States, was thus distributed: Arable lands, including vineyards, 29,749,167 acres; natural and artificial grass lands, 3,472,772 acres; rice plantations, 363,742 acres; olive groves, 1,503,327 acres; chestnut groves, 1,609,937 acres; woods and forests, 12,088,822 acres; pasturage, 16,794,847 acres; marshes, lakes, &c., 3,005,835 acres; waste lands, from 6,500,000 to 8,000,000 acres; making a total of about 75,000,000 acres. One-half of the soil that is cultivated is devoted to the cereals, while only 4 per cent. of the entire surface is devoted to the cultivated grasses; cattle and other domestic animals are, therefore, not numerous. In the whole of Italy the estimated number of domestic animals is given as follows: Horses, 1,462,816; cattle, 4,007,476; sheep, 9,736,101; swine, 4,059,021; goats, 2,615,421. This is only one-fifth the number of domestic animals in the United States in 1869. The annual average of cereal and other productions, in bushels, is as follows: Wheat, 101,484,236; maize, 48,728,339; rice, 3,972,325; chestnuts, 15,771,000; potatoes, 27,894,157; other vegetables, 11,899,178. Of oil the average is 1,775,256 hectoliters, and of wine, 34,977,849 hectoliters. Northern Italy is in a higher state of cultivation than the southern portion. Among the hills of Piedmont, which are as 0.774 to 0.226 of plain, and more particularly where the vine is cultivated, the land is mainly owned by small farmers in lots averaging from 1½ to 7½ acres, but on the plains, especially where rice is grown, the farms are large, ranging from 100 acres to 3,500 and upward, and are generally leased to substantial farmers. The principal products are wheat, rice, Indian corn, oats, rye, and other grains, vines and mulberry trees, clover, lucerne, flax, and hemp; apples, peaches, pears, cherries, chestnuts, and walnuts. Irrigation is general upon the plains. The yield of wheat, however, owing to defective tillage, is only about one-third of the English average per acre. Experiments have proved that it may be doubled with proper cultivation. The use of improved agricultural machines, hitherto discouraged, and of commercial fertilizers, is increasing. The cultivation of the vine in

Piedmont is also receiving greater attention, the old practice of festooning having been generally abandoned, and the improved French methods of culture substituted. In Lombardy there is much activity in agricultural pursuits. As in Piedmont, small farms are common in the hilly districts, and large farms on the plains. Most of the latter are irrigated. On the small mountain farms the spade is largely used, as it is also on the hills of Piedmont. The cultivation of the vine and mulberry trees, with wheat and other grains, prevails in the hills of Lombardy, while rice, flax, and hay are grown on the plains. Silk is a staple product. Cattle are generally kept by all farmers, and the country is rich in butter and cheese. In Venetia none of the cereals are largely cultivated, but are mostly imported from the Levant and the Black Sea. In the Roman States and the provinces which immediately adjoin them the modes of culture are very rude, and production is, of course, very limited.

The subdivision of the soil throughout Italy is much more favorable to farmers of small means than the English system of large landed estates, but is not so minute and impoverishing as that which prevails in France. In a population of 26,000,000 the number of landed proprietors is given at 4,180,000, with an average of  $12\frac{1}{2}$  acres each. In Piedmont and Sicily, 1 in 4 is a landholder; in Parma and Lombardy, 1 in 6; in Tuscany, 1 in 13; and in all Italy, in 1862, 17 in 100 owned land. The most subdivisions are in Piedmont and the Two Sicilies; the fewest, in Tuscany, Romagna, and Umbria, where large tracts are owned by the province, the commune, and the religious orders, and are generally badly farmed.

The cultivation of cotton and tobacco has been introduced into some of the Italian provinces, and the most satisfactory results have been obtained.

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### THE GAME LAWS OF PRUSSIA.

Up to 1848 the killing of game in Germany was a distinct and alienable proprietary right, held independently of the ownership of the soil, and empowering the holder to hunt and shoot exclusively over other lands than his own. In that year the Frankfort Parliament abolished the game laws throughout Germany, and the principle was established that the possession of the soil should thenceforth carry with it the inalienable and exclusive right to pursue and kill game upon it. But the abolition of all game laws was found, upon trial, to be too sweeping a measure. It permitted the taking of game in all seasons, encouraged poaching, gave rise to lawless abuses, and threatened the extermination of game altogether. In 1850 Prussia limited the personal exercise of the right of killing game to owners of at least 200 acres, and restricted the exercise of this right to certain seasons. In 1870 the North German Parliament passed a new game law, which retained the leading features of the laws of 1848 and of that of 1850. As the law now stands, any person in Prussia owning not less than 200 acres of land, lying together, and who procures annually a game certificate, at a trifling cost, has an unrestricted right to kill all game upon his own property; and the same right is extended to owners of all *inclosed* lands. The owners of *uninclosed* lands of less than 200 acres are not entitled to kill the game upon them; these revert, for all sporting purposes, to the commune in which they are situated, and form a common shooting district. There are only two months in the year—October and November—

during which the badger may be killed, owing to the services it renders the farmer in destroying grubs, insects, &c. The fox may be shot at any time. Great care is taken to prevent the extinction of the elk, which can only be shot by special license.

In 1867 an authority (Herr von Hagen) estimated the quantity of game annually killed in Prussia, and the value thereof, as follows:

Species of game.	Number killed.	Pounds each.	Pounds of meat.	Silbergroschen.
Red deer .....	4,288	120	514,560	At 2½
Fallow deer .....	2,546	50	127,300	2½
Roe deer .....	14,204	25	255,100	4
Wild boars .....	2,358	60	141,480	3
Elks .....	54	250	13,700	1½
Hares .....	1,097,316	5	5,486,580	3
Partridges .....	1,311,134	$\frac{3}{4}$	983,351	5
Pheasants .....	2,373	2	4,746	10
Black game .....	1,340	2	2,680	7½
Hazel game, ("Hazelwild") .....	992	$\frac{3}{4}$	744	10
Snipes .....	13,132	$\frac{1}{2}$	6,566	10
Wild ducks .....	16,454	1½	24,681	3
Rabbits .....	8,308	2	16,616	1
Fieldfares, shock of three score .....	4,824	15	72,360	2

Total number of pounds, 7,750,464, of the value of 840,752 thalers.

To the money value are to be added—

	Thalers.
11,524 foxes, at 1 thaler the skin .....	11,524
643 badgers, at 2 thalers the skin .....	1,286
Hides and skins of red deer, at 1½ thalers the skin .....	5,717
Hides and skins of fallow deer, at $\frac{3}{4}$ thaler the skin .....	1,697
Hides and skins of roe deer, at $\frac{1}{2}$ thaler the skin .....	2,841
Hides and skins of elks, at 3 thalers the skin .....	162
Hides and skins of wild boars, at $\frac{1}{2}$ thaler the skin .....	1,179
Hare and rabbit skins, at 3 groschen the skin .....	110,562

Total value ..... 975,720  
(Equal to \$712,275.)

Since 1867 various provinces have been annexed to Prussia, statistics of the game product of which, if procurable, would largely add to the above totals.

## SCIENTIFIC NOTES.

**REMOVAL OF GYPSUM FROM WATER.**—An easy method of removing gypsum from water consists in the application of the native carbonate of baryta, ground to a fine powder, in the proportion of about half a pound to a large pailful. After the addition of this substance the water is well stirred, and left at rest for twenty-four hours to deposit the sediment, after which it is to be poured off, and may be used.

**CAUSE OF THE RUSTING OF IRON.**—It has usually been supposed that the rusting of iron depends principally upon moisture and oxygen. It



would appear, however, from Dr. Calvert's experiments, that carbonic acid is the principal agent, and that without this the other agencies have very little effect. Iron does not rust at all in dry oxygen, and but little in moist oxygen; while it rusts very rapidly in a mixture of moist carbonic acid and oxygen. If a piece of bright iron be placed in water saturated with oxygen, it rusts very little; but if carbonic acid be present, oxidation goes on so fast that a dark precipitate is produced in a very short time. It is said that bright iron placed in a solution of caustic alkali does not rust at all. The inference to be derived is that by the exclusion of moist carbonic acid from contact with iron rust can be very readily prevented.

**PROPAGATION OF THE GRAPE BY EYES.**—A German agricultural journal informs us that the grape-vine can be propagated by means of eyes, so as to save three years' time in the growth, each eye furnishing a new shoot. Each grape-vine will furnish as many shoots as it has sound eyes, and they are to be cut off about a quarter of an inch from the eye on each side, so as to leave a cylinder of wood about half an inch long, with the eye in the center. If prepared in the autumn, these eyes may be put in a cellar in winter. In April they are to be laid down at a depth of two or three inches in furrows about six inches apart, and covered with a little manure, watered in dry weather, and the earth about them occasionally loosened.

**CURING DAMPNES IN WALLS.**—A Russian preparation for curing moisture in the walls of houses consists in the use of a mixture made by adding two pounds of white resin to a boiling solution of three and three-fourths pounds of green vitriol in one hundred pounds of water. To this ten pounds of sifted red ocher, or other color, eight pounds of rye meal, and six and a half pounds of linseed oil are to be added, and the whole stirred together until it forms a completely homogeneous mass. Two coats of this mixture are to be applied successively, while hot, but only in dry, warm weather.

**MANURE FROM DEAD ANIMALS.**—Dead animals are utilized in France by immersing their soft parts in a very feeble solution of hydrochloric acid, which soon transforms them into an odorless pulp. This is to be mixed with phosphate of lime, and the result is a manure of the best quality.

**UTILIZING THE GREASE OF SHEEP'S WOOL.**—An additional instance of the possibility of converting what was formerly considered refuse into valuable material, is seen in the case of the fatty matter contained in sheep's wool, and technically known as suint. This contains about 40 per cent. of potassa, and when ignited the alkali becomes entirely mixed thereby with strongly-nitrogenized animal charcoal. The result of recent experiments tends to show that suint, thus treated, may be used to an excellent profit in the manufacture of prussiates and cyanides.

**UTILIZING FISH OFFAL.**—An ingenious method, lately proposed, for utilizing the residue and offal of fish, consists in first boiling it together with one-tenth of its weight of cheap oil, heating it up from 250° to 300° F. It is then treated with sulphide of carbon, whereby the oil naturally contained in the fish, as well as that which was added, is extracted, and a mass is left, quite dry, and containing from 5 to 6 per cent. of nitrogen, and from 12 to 15 per cent. of phosphate of lime.

**MARKS OF DIFFERENCE OF SEX IN EGGS.**—It is stated that the eggs of the common hen, as well as those of many other birds, present cer-

tain external characteristics by means of which it is possible to determine beforehand the sex to be hatched from them. Thus, the "male" egg has, at its pointed end, small folds and wrinkles, while the "female" egg is entirely smooth, and well rounded off at both ends.

**BLACKENING STONE.**—A method of rendering stone completely black, to serve as a foil to some other color, or to protect it against the weather, consists in heating it in an oven to about 140°, and then removing it and dipping the side to be colored into a vessel filled with melted tar. After removal, the surplus is allowed to drain off, and laid not far from the stove to dry. When it is half dried, it is placed in the air and allowed to become completely dry, after which a wisp of straw is used to rub off the blackened side, which gives to the stone a brilliant luster, and prepares it for further use.

**ORIGIN OF MAIZE.**—The claim that the maize, or Indian-corn plant, is indigenous to the soil of the New World, has lately been contested, and recent investigations of certain Chinese records are cited to prove that it was cultivated in China prior to the discovery of America. Chinese authors maintain that it came originally from countries west of China, and that it was introduced into that country long before the first arrival of the Portuguese, in 1517.

**RUSSIAN METHOD OF PRESERVING FRUIT.**—A method of preserving fruit, quite frequently adopted in Russia, consists in slacking fresh lime by sprinkling it with water and adding a little creosote. The fruit is to be packed in wooden boxes, with a layer of the prepared chalk powder of an inch in depth at the bottom. This layer is to be first covered with a sheet of paper, and upon it the fruit is to be laid so as not to touch each other. On the first layer of fruit another sheet of paper is placed, with the lime powder sprinkled over it, and a sheet of paper over this; upon this another layer of fruit is spread, as before, and the process continued until the box is full. The corners may then be filled with charcoal. If a tight-fitting cover is put on the box, the fruit, it is said, will maintain its freshness for at least a year.

**MANURE FROM INDIAN CORN.**—It is said that a new manure is prepared in France from Indian corn, a substance now largely used in French distilleries. The grain, previously coarsely broken, is first subjected to the action of dilute sulphuric acid, to convert its starch into sugar. After fermentation the refuse is placed in large tanks, and when all the solid matters have subsided the clear liquid is drawn off, and the residue yields an excellent manure, containing about 9 per cent. of water, 68 per cent. of organic matters, including nearly 5 per cent. of nitrogen, and about 19 per cent. of mineral matter.

**SULPHURIC ACID FOR DESTROYING WEEDS IN LAWNS.**—A writer in an English journal suggests the use of ordinary sulphuric acid or oil of vitriol, as an excellent agent for the destruction of weeds on lawns. The difficulty of eradicating such unsightly elements of the lawn is well understood, since to do so satisfactorily requires the removal of a large amount of dirt, producing a corresponding injury to the general appearance. By taking the acid in question, and allowing a few drops to fall into the crown of any obnoxious weeds, it will turn them brown in an instant, and ultimately cause the death of the plant. Great care must of course be taken to prevent any of the acid from falling upon the skin, or any article of clothing; but with ordinary care a large amount of surface can be treated in a short time with most excellent results.

**PREPARATION OF WOODEN LABELS FOR PLANTS.**—Wooden labels for plants, to be inserted in the ground, may, it is said, be preserved for an indefinite time by first dipping them in a solution of one part copper vitriol and twenty-four parts water, and subsequently immersing in lime water, or a solution of gypsum.

**PRESERVATION OF BEET LEAVES FOR FODDER.**—It is well known that in France the beet is cultivated on a large scale, mainly for the preparation of beet sugar, and that the leaves are used very largely as food for cattle. A difficulty has hitherto existed in reference to this latter application, on account of the readiness with which the leaves become decomposed, and the impossibility of keeping them fresh for any considerable length of time. We are now informed that this has been overcome by M. Mehay, who subjects the leaves to the action of dilute hydrochloric acid, by means of which, after undergoing a special treatment, they can be stacked away in large quantities and kept indefinitely for future use. The application of the acid employed, so far from injuring these leaves as food, seems to impart to them special alimentary peculiarities, seen in the production of an improved quality of butter. Several veterinary surgeons have certified, as the result of a critical examination of the experiments, that the food gave rise to no disturbance of the digestive system, and that in every respect the new preparation was to be considered a success.

**FEEDING UNBROKEN GRAIN TO HOGS.**—Dr. Lehmann has lately communicated to the Agricultural Association of Saxony the results of some experiments of feeding unbroken grain to hogs, the animal to which the test was applied being a three-year-old pig, of an English breed, which had previously been fed, for a year and three-quarters, exclusively with rye bran. Four pounds of bran were given to it every twenty-four hours; and on each of the first two days of the experiment an addition was made of one pound of the grains experimented upon, the rations being furnished in only a slightly moist condition. The first of the undigested grains were passed off at the lapse of from twenty-four to twenty-five hours, the last of them appearing at various intervals; as, at the end of sixty-two hours for oats, seventy-two hours for barley, seventy-eight hours for rye, and the same for peas. In reference to the quantity of undigested and unaltered grains found in the excrement, it is stated that in one hundred pounds there appeared unchanged and entire 50.6 of oats, 54.8 of barley, 49.3 of rye, and 49.4 of peas. From these results it will be seen that in general only half of the entire grain is used in the process of digestion, and that every one who furnishes food in this manner has to supply twice as much as is actually necessary, at, of course, double the necessary cost. It is, therefore, very evident that a due regard to economy makes it expedient to reduce the food to a more or less fine condition before it is given to such animals.

**FEEDING NETTLES TO LAYING HENS.**—The Vienna Agricultural and Forest Journal states that hens fed in the winter with chopped and boiled nettle leaves, or with the seeds, and kept in a warm place, will continue to lay during the entire winter. The experiment was first suggested by noticing the eagerness with which both domestic and wild fowl devour the nettle leaves and seeds whenever the opportunity is afforded. This proclivity is believed to be the reason why, with the enormous yield of seeds on the part of the nettle, comparatively so few plants spring. It is stated also that in Denmark the seeds and leaves of the nettle are fed very carefully to horses, after having been collected,



dried, and ground; three times a week, morning and evening, a handful of this nettle dust is mixed with the oats, in consequence of which the horses are said to become fleshy and sleek, and their hair to grow unusually long, and to assume a remarkably beautiful, silky luster.

**COOLING OF BROODED EGGS.**—An inquiry is made of the German Poultry Journal whether eggs brooded upon and allowed to become cold can be hatched; in reply to which it is stated that, from extensive observation, it has been shown that eggs which have remained cold for two days or more may even then be successfully brooded, and that the nearer to the period of the escape of the young, the longer may this cooling last. It is, however, necessary that at least half of the brooding period be passed, as, if eggs are left too long in the first half of the period, especially if this is repeated many times, the embryo will, in almost every instance, die. In the second half of the period the chick is already so far formed that a prolonged cooling is not especially injurious to it. It is also established that eggs thus cooled require a longer time than usual to come to maturity.

**DRAINING WITH FASCINES.**—The choking up of clay drain-pipes, especially when used to carry water containing iron in solution, (from which the oxide of iron is precipitated,) has frequently caused great difficulty in keeping up a proper drainage; and, in view of this fact, the propriety of adopting the old method of using fascines, or bundles of wicker-work, has been urgently recommended. For this purpose a coarse wicker-work, made of alder or willow, is to be loosely plaited together into a tube of about ten inches in diameter, braced by cross-pieces at intervals of two feet. A number of these are to be united into a continuous tube, and laid in the ditches prepared for their reception. Sod is then to be laid on the top, with the grass side down, and the trench filled with earth. In this way a very cheap system of drainage is obtained, which will remain for a long time without filling up; while earthen-ware tubes do not answer their purpose for more than six or eight years. The use of the wicker-work has the additional advantage of allowing the air to penetrate upward through the soil, thereby increasing its productive properties.

**EFFECT OF TREES ON CLIMATE, (MALTA.)**—Much has been said in the work of Mr. George P. Marsh, entitled "Man and Nature," and by many other writers, of the influences exerted by man upon the physical condition of the earth and the atmosphere, and deserved stress has been laid upon the important part played by trees in all phenomena connected with the amelioration of climates and the restoration or increase of rain-fall, and the diminution in the number and the intense severity of inundations, &c. Mr. Buchan, a well-known meteorologist of Edinburgh, has lately made a report to the scientific society of that city in regard to certain measures about being introduced by the Governor of Malta for replanting the island with trees, in which he remarks that the characteristic features of the climate of that island are the cold northerly winds of the winter, and the excessive heat of summer, with a great scarcity of water throughout the whole year. The entire absence of trees on the island was thought to intensify and increase these extremes, and it was believed that by securing an abundant covering of forests much could be done for the amelioration of the climate. Mr. Buchan, in reference to the general theory of such amelioration, states that while the highest temperature of the air occurs in summer between 2 and 3 o'clock p. m., the change in the trees is very



slow, the leaves not attaining their maximum temperature until 9 o'clock p. m. Thus, while the atmospheric changes are rapid, the temperature varies slowly in the trees, and therefore they serve, like the ocean, as equalizers of the temperature, moderating the heat of the day and maintaining a higher temperature during the night.

In continuation of the same subject, Mr. Buchan remarks that, as air is heated by contact with the soil, and as trees shelter the soil from the solar radiation, they must diminish the force of the sun's rays, especially in the lower strata of the atmosphere. The exhalation of moisture by trees produces cold in the air by abstracting the latent heat from it. This lowering of the temperature gives to the air a greater degree of humidity. Again, the leaves of trees exercise an important influence in cooling the atmosphere, as the tree itself, by its radiation of heat, becomes sensibly lower in temperature, and thus cools the air as it plays among the leaves.

**VINEGAR FROM UNRIPE FRUIT.**—Unripe fruit, especially apples and pears, as is well known, is much used in the manufacture of vinegar; but the process usually adopted is defective in many important points. We therefore give, for the benefit of our readers, the substance of an article from Graeger's *Manual of Vinegar Making*, just published in Germany, which may, perhaps, serve a useful purpose. The principal fault of the old process consists in throwing away the pulp after the juices are expressed. As this, however, contains a large percentage of starch, excellently adapted for conversion into vinegar, it is necessary to prepare the fruit so as to save this portion of its substance. With this object it is to be grated, exactly as potatoes are prepared in the manufacture of starch, and the pulp passed through a moderately fine sieve, or through a coarse and open meshed cloth. There is thus nothing left behind but the pomace proper, or cellulose, all the starchy matter having been passed through the sieve with the juice. This is next to be diluted with water, in proportion to the quantity of starchy matter thus obtained; and the whole is then placed in a clean copper kettle, one or two per cent. of concentrated sulphuric acid being added, and heated long enough to transform the starch into grape sugar. The sulphuric acid is to be neutralized by means of carbonate of lime; the gypsum or the sulphate of lime thus produced allowed to settle, and the liquid to become clear, and then poured off. This liquid is to be left for fermentation to take place, either with or without the use of yeast. A liquid having 8 or 10 per cent. of sugar can easily be made to have 4 or 5 per cent. of alcohol after fermentation, which, by its subsequent acidification, will yield a vinegar of 5 to 6 per cent. of acetic acid.

**USE OF FLESH OR MILK OF APITHOUS CATTLE.**—Professor Dammann has lately renewed, with great care, the inquiry as to the wholesomeness of flesh or milk of cattle that have been afflicted with the foot and mouth disease, and has come to the conclusion that the use of these substances cannot be forbidden with sound reason. He states that the flesh is absolutely harmless, and its use should be allowed under any circumstances, taking care in every case that the slaughtering be done in one and the same place, in order that no new locality be unnecessarily tainted by the liquids resulting from the operation.

In reference to using the milk, he states that should any misgiving be felt, it may be converted into butter or cheese, in which case it is absolutely harmless. No reliable instances could be found, in the course of a long and careful inquiry, of any infection or disease having been communicated to mankind or the lower animals by eating the flesh of

animals thus afflicted, or by drinking their milk. The author concludes by saying that it is eminently right and proper that legal and other precautions be taken against the propagation of the disease in living animals, but that these measures should always be subordinated to the general principles which have now been fairly established.

**ACTION OF POTASH ON FRUIT TREES.**—Dr. George B. Wood, in a late communication to the American Philosophical Society, in Philadelphia, presented the result of certain experiments made by him upon the effect of salts of potassa when applied to grain and fruit-producing soils. In his view, the depreciation of the productiveness of apple, peach, and quince orchards is due to the exhaustion of potash from the soil. Several of such orchards, formerly very valuable, but which had within a few years ceased to bear much fruit, on being treated with an application of wood ashes to the roots of the trees, became completely revived, producing full crops the following year. A still more striking effect was seen the second year, under a renewal of the application. He cited several other instances where the same results followed; in one case where an apple orchard, planted on an old orchard's site, which had never borne fruit, was made to produce a good crop by the application of ashes.

**KILLING RABBITS BY SULPHUR.**—It is well known that the European rabbit has been introduced into Australia, and by its enormously rapid multiplication bids fair to become a veritable pest to the country. Many remedies have been proposed for their extermination, among which the burning of sulphur in their burrows has been strongly recommended. An article by a Mr. Archer, on this subject, however, recounts the numerous experiments made for the purpose of their destruction by sulphur, and ends with the statement that this method is not at all satisfactory, and that carbonic acid would probably be more efficient.

**DESTRUCTION OF GRAIN BY INSECTS.**—Some idea of the injury caused by insects to agricultural products may be formed from the statement that, from 74 tons of Spanish wheat stored in a granary, 10 hundred-weight of beetles were screened out in one instance, and in another 35 hundred-weight were removed from 145 tons of American corn. The offender in both cases was a weevil, known as *Colandra orisæ*.

**BAOBAB BARK AS A NEW FIBER.**—It is well known that great efforts are being made all over the world to increase the supply of material for the manufacture of paper and textile fabrics, by calling into play substances previously unthought of in this connection. Among the later additions to the series may be mentioned the fibrous bark of the Baobab tree, (*Adansonia digitata*.) This is said to be worth in England from \$70 to \$75 per ton. It furnishes, also, an almost indestructible cordage.

**COLORING FOR BUTTER.**—According to the *Moniteur Scientifique*, a coloring matter much superior to the annatto for coloring butter may be prepared from carrots. For this purpose the roots are to be cut in slices and dried, and afterwards ground to powder, and subjected to the action of sulphide of carbon. An extract can be obtained in this way which, rapidly crystallized, furnishes pure carotene; an insipid, inodorous substance, resembling alizarine in appearance.

**NEW ZEALAND FLAX.**—Among the substances used in the arts as fibers, the New Zealand flax at one time promised to be of great promi-

nence; but owing to its high price, and the difficulty and expense of bleaching it, it has not been employed in so many applications as its strength and other qualities warrant. The principal difficulty in making a profitable use of it has been from the tenacity of the gum which envelops the fibers. This, according to a late writer, consists of three distinct substances: first, an actual gum, found only on the upper leaves and near their bases, and readily dissolved by boiling water, or removable by mechanical means; second, a bitter principle, which it is suggested may be used as a dye or stain for wood, and a mucilage, both easily extracted; and third, a kind of cement, only to be removed by boiling water and alkali, and upon the retention of which the strength of the fibers depends.

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### ITEMS FROM VARIOUS SOURCES.

**PALACE STOCK CARS.**—The first train of palace stock cars from the West to the East passed over the Pennsylvania Railroad and its western connections about the 1st of May. The event is of general interest, in its humanitarian as well as economic aspect. The train consisted of eleven cars, containing one hundred and seventy-two head of cattle. The cars are arranged for holding sixteen head each, with separate stalls connected by gates, which are closed as soon as an ox gets his place. These stalls are readily adjustable to the size of the animal, so as to afford ample room for lying down and rising up. A comfortable bed of shavings is strewn over the bottom. At the top of each car is a feed-box, with canvas spouts, which communicate with the feed-basins underneath; also a water tank. By this arrangement the cattle can be fed and watered during the transit without unshipping. The cars are about eight feet longer than ordinary stock cars, and there is ample room to prevent the animals from being bruised or jarred. Underneath are the passenger car trucks, with elliptical spring and swinging bar. It is the intention to have stock trains of the above description to run from St. Louis to New York in ninety-six hours. Under the old plan, ten days were often consumed in making the trip, and the discomfort to cattle and shrinkage in their weight were very great.

**IMMIGRATION TO THE SOUTHERN STATES.**—The policy of dividing the large landed estates of the South into small farms, and inviting industrious and order-loving farmers to purchase them and make their homes upon them, is making some progress in that section. Rapid increase in production, material improvement, and accumulation depend upon its more general adoption. A late number of the *Natchitoches* (Louisiana) *Times* says that, during the preceding week or two, some of the largest land-owners of that vicinity have been quietly talking over certain plans to induce immigration to the parish. The basis is a subdivision of large tracts of land into small farms of forty acres or more, and the sale to actual settlers of alternate lots, at low prices, and on long credit, or even the donation of every third or fourth lot to industrious families from abroad, whose success might induce their friends to purchase the intervening farms. The *Times* prefers immigrants from France, Louisiana being originally a French settlement, and still continuing to be largely French in many of its social, religious, and political features, and favors especially the organization of a plan to induce the farmers and mechanics of Alsace and Lorraine to occupy



the fertile fields, which are capable of supporting a much denser population than has ever occupied them.

**THE ALMOND AND OLIVE IN CALIFORNIA.**—Captain Jonathan Mayhew, of Santa Barbara County, California, has succeeded in growing several fine specimens of the almond tree. One tree of the Languedoc variety, two years old from the bud, produced five hundred and fourteen nearly full-sized almonds. The tree is eight feet high with a top spread of nine feet. Other trees of the same age are equally thrifty. A three-year-old Languedoc tree measures thirteen feet high, with a top spread of thirteen feet. Other three-year-old trees nearly equal this one. Four trees, four years old, are bending with fruit. These older trees will probably average 3,000 or 4,000 nuts, or 30 to 40 pounds per tree. The wholesale price of the nuts is seldom less than 25 cents per pound. Captain Mayhew has also, on his farm, three-year-old olive trees propagated from cuttings, three inches in diameter, which are ten and one-half feet high, and are thrifty and promising. The Santa Barbara region presents very favorable conditions for olive growth. Captain Mayhew does not resort to irrigation, but practices deep plowing

**SHEEP HUSBANDRY IN CALIFORNIA.**—Monterey County is a great sheep-walk. Flint, Bixby & Co., of San Juan, on 200,000 acres of land, graze 75,000 sheep and thousands of cattle. We learn that they sheared this spring over 300,000 pounds of wool, realizing \$95,000. The Breens, on 25,000 acres, feed 3,000 sheep and large numbers of cattle and horses. P. Vacca & Co. have 10,000 sheep; Hernandez, 20,000; J. D. Carr, 15,000; E. J. Donnelly, 16,000; A. Mitchel, 2,500; Reynolds & Russel, 5,000; Gooderich & Baker, 8,000; Moore, 7,000; Pendleton, 1,500; Grogan, 1,500; Dr. Matthews, 1,500; D. Wilson, 1,500; D. Dodge, 2,000; W. H. Stone, 2,000; J. W. Stone, 3,000; N. Crooks, 2,000; E. James, 2,000; Wilcox & Bro., 3,000; U. Matthews, 2,000; T. Butterfield & Son, 1,000, besides 200 Angora goats, worth from \$100 to \$500 each. The total of all the above flocks is 203,500 sheep.

**THIN SEEDING.**—George Wilkins, Wix Vicarage, (England,) a correspondent of the *Gardeners' Chronicle*, gives the results of his experience as follows: For fourteen years in succession he never exceeded two pecks, or sixteen quarts, of seed-wheat to the acre, and sometimes used less than one peck, and yet, in each of two of those years he harvested 56 bushels of wheat to the acre, and the average of the fourteen crops in fourteen years was 44 bushels to the acre. The seed was sown with a drill. One of the conditions necessary to the production of large crops from thin seeding he states to be the sowing of the seed early in the fall, that the plants may have a fair start before the setting in of winter. Thorough drainage he also deems an essential condition.

**CULTIVATION OF THE PLAINS.**—R. S. Elliott, industrial agent of the Kansas Pacific Railroad Company, who has been experimenting extensively along the line of the road with the cereals, grasses, and fruit and forest trees, reports that his "experience already warrants the belief that we may grow on the plains, without irrigation, lucern and other valuable forage plants; winter and spring grain, and trees from seeds, as far west as the one hundredth meridian, and probably to the mountains. Experiments now in progress, justify the faith that trees from seeds, cuttings, and young plants may be grown for timber, fuel, and fruit in all parts of the plains between the Platte and the Arkansas Rivers. The growth of living storm-shields along the line of the Kan-



sas Pacific Railway, and timber for the uses of the road, is only a matter of effort and time."

**TENNESSEE INDUSTRIAL EXPOSITION.**—We note with pleasure the complete success of the exposition of the industries of Tennessee, which took place at Nashville in May. Much interest was manifested in the enterprise, which was the first of its kind in the State, and its originators and managers met with ample encouragement. The substantial and capacious building devoted to the exposition was thronged with visitors for twenty days. Tennessee is rich in many of the chief elements of material wealth, and such exhibitions as this will soon teach all her people that it is their true policy to develop them.

**THE CENSUS** establishes the fact that petite culture, or small farming, has made rapid encroachments during the past decade upon the boundaries of large farms and the system of mixed husbandry in the vicinity of our large cities. The production of poultry, eggs, milk, small fruits, vegetables, &c., can be successfully engaged in upon small parcels of land and with limited means in the neighborhood of a good market, and the number who have within the past few years embarked in this business is greater than has been generally supposed.

**VETCHES.**—Dr. H. R. Casey, the correspondent of the Department for Columbia County, Georgia, writes that last winter he sowed in his garden a pint of vetch seed, procured in France, as an experiment. On the 11th of June it had produced a beautiful bed of green forage, over a foot high and very thickly matted. The opinion is expressed by our correspondent that the plant will make good green pasturage, but will possess more value as dry forage. The yield on good ground, he thinks, would be heavy.

**A POTATO PLANTER.**—There has recently been patented another machine for planting potatoes, which, it is claimed, makes the furrow, deposits the seed, and covers it up, by going but once over the ground, and can be used with either one or two horses. A machine of this character that will do its work well is wanted by farmers, and we hope that complete success may soon be obtained in this class of agricultural implements.

**LIMA BEANS IN CALIFORNIA.**—Captain Jonathan Mayhew, of Santa Clara Valley, has a field of 100 acres in Lima beans. The crop is in very promising condition. The beans sell at about  $3\frac{1}{2}$  cents per pound when the common white beans bring  $2\frac{1}{2}$  cents, and are said to be no more trouble to cultivate or to market.

**SQUIRREL SKINS VALUABLE.**—Squirrels are so great a nuisance in California that a bounty of 10 cents per head is paid for their destruction. Mr. Frank Tracy has killed and trapped 10,000 in one season, for which he got \$1,000 bounty. He sent the skins to Paris, where they sold at 15 cents each, swelling his receipts to \$2,500 for his captures. The skins are said to be more valuable than those of the rat or kid in the manufacture of gloves.

**TEXAS CATTLE.**—A dispatch from Abilene, Kansas, dated June 9, states that one dealer in Texas cattle arrived there that day with 5,000 head of mixed stock and 2,000 beeves. A close calculation foots up 132,000 head of Texan cattle now within a radius of twenty-five miles of Abilene.

# METEOROLOGY.

[COMPILED IN THE DEPARTMENT OF AGRICULTURE FROM REPORTS MADE BY THE OBSERVERS OF THE SMITHSONIAN INSTITUTION.]

Table showing the highest and lowest range of the thermometer, (with dates prefixed,) the mean temperature, and the amount of rain and melted snow, (in inches and tenths,) for April and May, 1871, at the stations named. Daily observations made at 7 a. m., and 2 and 9 p. m.

Stations in States and Territories.	APRIL.						MAY.					
	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.
<b>MAINE.</b>												
		Deg.		Deg.	Deg.	In.		Deg.		Deg.	Deg.	In.
Houlton .....	29	59	9	21	43.3	6.20						
State Agr. College	21	65	1	23	40.9	4.01	30	89	5	34	50.7	3.48
Surry .....	21	68	6	27	43.1		30	94	4, 5	38		
Williamsburg .....	21	62	1, 6	18	37.3	4.55	30	88	5	30	49.8	2.43
West Waterville .....	10, 21	68	1	25	44.1	2.80	30	90	5	34	53.8	4.10
Gardiner .....	10, 22	58	1	30	44.1	3.38	30	86	4	36	53.8	3.92
Lisbon .....	7, 21	68	1	24	42.9	5.23	30	93	4	35	53.1	5.80
Standish .....	21	72	1	29	44.2	3.45	30	95	4	36	55.0	4.94
Norway .....	8, 21	68	1, 6	29	42.3	4.20	30	92	4, 5	34	55.0	4.70
Cornish .....	8	70	1	23	43.1	4.33	21	91	4, 5	34	54.2	4.37
Cornishville .....	7, 8	70	6	27	44.4	4.30	30	93	4, 5, 7	35	56.1	5.30
<b>NEW HAMPSHIRE.</b>												
Stratford .....	8	77	1	15	40.0	4.30	21	95	8, 11, 14	33	51.7	2.94
Whitefield .....	8	79	1	13	42.2	3.21	21	89	8, 11	36	52.5	2.87
Summit Mt. Wash- ington .....	8	47	5	4	25.0							
Tamworth .....	8	84	1	22	43.9	4.55	30	92	4, 5	35	56.0	5.18
Contoocookville .....	8	85	1, 2	30	47.4		30	94	5	38	59.0	3.40
Amoskeag .....	8	88	1	17	44.3	2.60	30	95	11	34	55.9	3.35
<b>VERMONT.</b>												
Lunenburg .....	8	75	6	23	43.1	5.50	21	90	14	34	54.0	3.63
Craftsbury .....	8	72	1	16	39.4	4.04	21	88	8, 13	32	50.5	2.44
South Troy .....	8	72	1	14	43.6	4.64	21	93	8	34	53.9	2.72
Randolph .....	8	82	1	21	44.7	2.53	30	93	8	34	55.1	3.50
Woodstock .....	8	78	1	22	42.2	2.37	29	86	24	33	52.4	3.74
Norwich .....	8	82	1, 6	26	47.3	2.40	29, 30	90	5, 11, 14	38	58.3	2.10
Near St. Albans .....	7	67	6	24	42.6	3.30	21	87	8	35	54.2	2.90
West Charlotte .....	7	70	1	25	46.8	6.13	21	94	10	37	57.5	2.88
Panton .....	9	76	1, 5	28	44.8	4.98	30	94	18	38	56.1	2.90
Castleton .....	8	83	6	24	46.3	1.64	30	92	11	38	56.7	4.67
<b>MASSACHUSETTS.</b>												
Kingston .....	8	84	6	29	46.2	2.05	30	96	10	39	56.3	4.00
Newbury .....	8	89	1	27	45.8		30	97	10	39	57.4	
Lawrence .....	8	82	6	30	45.2	2.78	29, 30	94	3, 4, 5	39	58.1	3.73
Georgetown .....	8	84	1	26	45.4	3.62						
Milton .....	8	87	2, 11	33	48.5	2.96	30	97	8	41	58.9	3.46
Cambridge .....	8	86	2	32	49.3							
North Billerica .....	8	88	3, 5, 6	32	48.0		30	94	10	38	57.9	
West Newton .....	8	91	2	30	48.3	1.93	30	100	14	40	58.9	3.67
New Bedford .....	8, 10	73	6	30	46.8	3.76	30	84	10	41	55.0	2.57
Lunenburg .....	8	86	1	27	47.2	3.35	30	93	5	37	57.6	4.70
Mendon .....	8	82	1, 2	28	46.4	3.20	30	88	11	38	57.2	4.40

Table showing the range of the thermometer, &amp;c., for April and May—Continued.

Stations in States and Territories.	APRIL.						MAY.					
	Date.	Maximum tempera- ture.	Date.	Minimum tempera- ture.	Mean temperature.	Rain and melted snow.	Date.	Maximum tempera- ture.	Date.	Minimum tempera- ture.	Mean temperature.	Rain and melted snow.
MASS.—Contin'd.		Deg.		Deg.	Deg.	In.		Deg.		Deg.	Deg.	In.
Amherst.....	8	85	1	27	48.0	3.09	30	93	5	41	57.8	3.82
Richmond.....	8	80	1	26	47.3	3.45	29	90	11, 15	32	57.4	2.86
Williams College.....	8	82	1, 6	28	46.2	2.29	30	90	11	36	56.3	2.19
Hinsdale.....	8	78	2	26	44.9	2.15	.....	.....	4, 5, 11	34	.....	.....
RHODE ISLAND.												
Newport.....	21	68	6	32	48.6	3.20	30	80	14	40	56.6	4.18
CONNECTICUT.												
Columbia.....	8	88	6	26	49.5	3.80	30	97	8	41	59.2	4.03
Middletown.....	8	87	6	29	48.8	3.14	30	90	11	41	57.4	4.80
Southington.....	8	86	6	30	49.2	2.35	30	86	5	39	57.9	5.05
Round Hill.....	8	86	6	29	50.9	2.93	30	91	5	41	59.1	3.15
NEW YORK.												
Moriches.....	10, 26	73	3	25	49.8	4.31	27	92	9	47	61.5	2.37
South Hartford.....	8	84	6	22	48.6	1.95	21	92	8	38	60.3	2.10
North Argyle.....	9	77	1	21	45.5	2.50	.....	.....	.....	.....	.....	.....
Garrison's.....	8	85	1, 2	35	53.0	2.98	30	94	5	44	59.0	2.11
Throg's Neck.....	8	86	6	35	51.7	.....	30	91	4	45	61.1	.....
White Plains.....	8	84	1, 2, 3	34	52.1	.....	31	85	5	43	59.3	.....
Cooper Union.....	9	81	1	35	53.3	3.45	30	89	14	44	61.8	4.90
Brooklyn.....	8, 9	83	1, 2, 6	36	53.6	3.84	30	92	5, 14	46	61.6	3.90
Flatbush.....	8	88	17	30	51.8	5.30	30	91	5	41	60.6	2.78
Glasco.....	.....	.....	.....	.....	.....	.....	20	88	7, 8, 9, 11	40	58.3	7.30
Amsterdam.....	8	86	1	25	40.7	.....	.....	.....	.....	.....	.....	.....
Middleburgh.....	.....	.....	.....	.....	.....	.....	21, 29	93	11	34	59.1	5.20
Fairfield.....	8	72	5	25	43.7	.....	30	86	8	35	54.2	.....
Cooperstown.....	8	82	6	22	46.0	2.66	29, 30	90	1, 8	37	56.0	3.18
Gouverneur.....	8	77	1	20	42.8	.....	30	87	10	34	54.0	1.76
North Hammond.....	8	76	5, 6	24	49.0	4.60	31	88	8, 9, 14	40	58.0	2.19
Lowville.....	8	73	6	20	43.2	2.78	21	88	10	34	53.9	2.20
South Trenton.....	8	74	14	20	42.8	4.41	30	92	{ 1, 4, 8, 9, 15 }	40	53.5	2.97
Cazenovia.....	8	77	5	26	45.3	.....	21	90	9, 13	37	55.6	.....
Oneida.....	8	80	1	27	48.0	7.71	30	94	8, 9, 10	40	58.0	4.12
Depauville.....	7	72	5	25	44.2	3.70	30	82	10	34	53.3	1.82
Oswego.....	7	77	1, 6	28	45.8	2.88	30	82	8	39	53.3	1.83
Palermo.....	8, 9	75	6	23	44.3	2.80	29	92	10	37	55.3	0.06
North Volney.....	8	75	6	26	45.0	.....	30	92	10, 13	37	56.7	.....
Waterburgh.....	.....	.....	.....	.....	.....	.....	30	95	9	33	56.2	.....
Nichols.....	8	87	5	28	48.4	.....	29, 30	98	10	35	57.5	.....
Newark Valley.....	8	84	6, 18	28	47.6	2.40	{ 20, 21, 29, 30 }	92	11	35	55.7	3.90
Rochester.....	7	84	1	33	50.7	2.75	30	92	8	41	61.9	1.70
Little Genesee.....	7	84	17	25	47.8	2.39	25	91	9	36	56.1	1.64
Angelica.....	7	79	14, 18	26	48.7	.....	25	87	11	28	53.8	1.01
Carlton.....	8	76	1	23	46.3	2.50	30	87	4, 8	40	55.5	1.38
Suspens'n Bridge.....	8	77	1	29	47.2	3.50	30	92	11, 14	40	55.0	1.30
Lockport.....	7	75	5	23	47.2	2.26	30	89	7, 8	40	57.0	1.65
Buffalo.....	24, 26	70	5	31	47.0	2.68	29	85	8	36	56.5	1.99
Jamestown.....	7	80	17	31	48.7	2.00	25	86	9	34	56.0	1.60
NEW JERSEY.												
Jersey City.....	9	89	2, 6	35	54.3	3.44	30	92	5	45	62.1	4.01
Paterson.....	9	87	6	32	52.7	1.89	.....	.....	.....	.....	.....	.....
Newark.....	9	85	2, 6	32	52.8	3.69	30	88	4, 8, 9	40	.....	.....
South Orange.....	8	88	2	32	52.3	3.13	30	90	9	40	59.3	3.82
Trenton.....	9	85	2	39	57.8	2.14	30	89	9	46	66.0	2.33
Rio Grande.....	12	83	2, 16	34	51.8	3.50	26	88	6, 14	45	61.1	3.25
Moorestown.....	8	84	2, 3	36	54.2	1.50	30	90	9	43	61.7	3.41
New Germantown.....	9	82	1	34	52.9	2.32	30	92	9	43	61.0	3.82
Readington.....	8	84	14	36	54.6	.....	30	90	9	38	62.9	.....
Greenwich.....	8	83	2	38	56.3	1.44	26	87	14	45	62.0	2.97
Vineland.....	8, 9	84	2	36	56.1	2.40	26	91	11	41	64.3	3.00



Table showing the range of the thermometer, &amp;c., for April and May—Continued.

Stations in States and Territories.	APRIL.						MAY.					
	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.
<b>PENNSYLVANIA.</b>												
		Deg.		Deg.	Deg.	In.	Deg.		Deg.	Deg.	Deg.	In.
Nyces .....	8	83	6	26	48.5	3.80	30	89	9	35	58.2	2.50
Hamlington .....	8	80	1	31	49.1	1.55	30	90	9	32	61.5	2.65
Dyberry .....	8	82	6	24	45.3	2.58	30	91	9, 11	33	56.0	2.65
Fallsington .....	8, 9	82	2	35	53.0	2.00	30	91	5, 6, 7	47	63.0	3.60
Philadelphia .....	8	84	2	37	56.6	1.93	30	90	10	48	65.2	2.92
Germantown (M). ..	10	85	1	37	57.4	.....	30	92	14	44	65.0	.....
Do. .... (T). ..	8	87	2	38	55.9	3.11	30	89	14	47	63.2	3.04
Horsham .....	8	84	1, 2	36	54.2	1.95	30	85	7, 9, 10	46	61.6	4.85
Plym'th Meeting. ....	8	84	2	37	54.2	0.99	30	89	11	45	.....	.....
Egypt .....	8, 10	83	18	31	52.0	.....	30	95	8, 9	34	61.0	.....
Factoryville .....	8	82	6	29	47.7	2.20	30	92	11	35	57.1	2.45
Reading .....	8	85	1, 14, 18	40	56.8	1.93	30	91	11	45	64.6	4.10
West Chester .....	8	79	2	36	52.7	1.79	30	89	14	44	62.3	2.52
Parkersville .....	9	84	18	35	54.2	1.84	27, 30, 31	90	8, 11	41	63.0	2.50
Tamaqua .....							21	90	9	26	51.0	.....
Catawissa .....							21	90	10	39	59.2	.....
Ephrata. .... (S) ..	8	85	1	33	54.5	2.29	30	90	8, 11	40	62.7	.....
Do. .... (M) ..	11	79	1	31	54.6	.....						
Harrisburg .....	9	86	1	36	58.0	2.92	30	94	9	47	66.4	3.66
Carlisle .....	8	84	1	36	56.4	2.10	27, 29, 30	94	11	44	64.9	3.10
Fontain Dale .....	8	81	1	37	55.8	3.14	30	87	10	48	63.6	2.97
York Sulpr's Sp'gs ..	8, 10	82	1	36	55.8	2.80	28	91	6	46	63.7	2.70
Tioga .....	8	84	17	20	47.1	2.30	30	92	9	20	51.9	2.55
Grantman Hills. ....	7, 8	80	1, 15	28	46.4	3.85	29	92	9	35	57.8	2.03
Johnstown .....	8	80	16	28	52.6	4.02	29	90	11	35	61.1	2.99
Franklin .....	7	84	16	28	51.1	2.27	29	91	9	34	59.6	2.15
Pittsburg .....	8	80	16	35	58.6	.....	29	87	9	41	63.3	1.10
Connellsville .....	8	85	16	32	55.3	.....	31	93	14	40	63.1	.....
Brownsville .....	7, 8	85	15, 24	32	57.0	.....	29, 31	90	11	35	62.0	.....
Greenville .....	7, 8	78	15, 16	30	50.7	2.30	29, 30	86	9	37	58.6	2.30
Newcastle .....	9	76	16	25	54.4	1.30	30	90	9	32	62.2	2.60
Beaver .....	7, 8	79	16	35	54.4	.....	29	87	9	41	61.3	.....
Cannonsburgh .....	7	83	2	31	53.9	1.83	25, 29	88	8, 11	38	61.7	3.13
<b>DELAWARE.</b>												
Dover .....	8, 9	86	2	40	59.4	0.60						
Milford .....	8	86	2	37	58.4	2.00	26, 30	89	18	42	62.2	6.40
<b>MARYLAND.</b>												
Woodlawn .....	8	88	2	36	56.3	1.80	26	88	9, 10	46	63.5	2.67
Fallston .....	8	83	2	35	55.7	1.74	30	89	11	45	68.0	4.44
Annapolis .....	11	78	2	39	58.9	1.87	26	92	10	47	65.9	4.62
Woodstock Col. ....	8	83	2	37	55.0	2.22						
Linwood .....							30	95	11	46	66.6	2.14
Mt. St. Mary's .....	8	84	1	37	55.7	3.96						
<b>DIST. OF COLUMBIA.</b>												
Washington .....	8	83	2	41	58.7	0.95	26	90	10	48	65.2	3.70
<b>VIRGINIA.</b>												
Johnsontown .....	8	84	2	42	59.3	3.20	26	86	10	46	65.0	2.90
Capeville .....	8	86	2	44	63.5	.....	26	91	10	50	69.0	.....
Hampton .....	8	89	2	44	61.0	3.05	26	92	10	49	67.0	3.86
Surry C. H. ....	9	92	2, 3, 15	46	63.2	3.25						
Comorn .....	8	86	2	41	60.7	1.61	26	86	10	47	66.3	3.76
Mt. Solon .....	8	86	24	33	57.5	1.75	{ 25, 26, 27, 28 }	86	11	38	61.7	5.15
Fairfax C. H. ....	9	84	24	31	55.7	.....	26	89	11, 14	45	62.2	3.40
Accotink .....	8, 9	85	1, 2	36	56.4	1.02	26	86	10	42	61.3	3.52
Near Waterford. ....							31	90	11	45	67.0	.....
Piedmont .....	8	86	1	39	58.8	1.80	31	92	9, 10	45	63.8	3.20
Markham Station. ....	8	87	1, 2	40	60.3	.....	31	89	10	48	64.7	9.40
Piedmont Station. ....	8	86	2, 13	38	57.0	2.00						



Table showing the range of the thermometer, &amp;c., for April and May—Continued.

Stations in States and Territories.	APRIL.						MAY.					
	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.
VA.—Continued.		Deg.		Deg.	Deg.	In.		Deg.		Deg.	Deg.	In.
Keswick Station.....	8	90	22	41	49.4	.....	26	95	11	41	65.9	.....
Lexington.....	8	85	15	32	56.6	2.53	27	86	10	41	62.8	5.55
Lynchburg.....	8	82	15	44	63.1	2.25	23	85	10, 11	47	64.7	4.75
Near Wytheville.....	8	82	24	38	55.2	3.30	23	84	6	43	61.8	4.70
WEST VIRGINIA.												
Weston.....							25, 26	90	6, 11	42	62.9	.....
NORTH CAROLINA.												
Goldsboro.....	8	92	24	43	66.3	4.26						
Oxford.....	8, 10	86	2	43	62.0	2.15	27	88	10	46	69.0	5.15
Fayetteville.....	7	87	24	44	64.4	2.95	27	90	{ 8, 11 19, 20 }	50	68.4	4.00
Albemarle.....	8	93	2	37	60.9	3.50	27, 28	90	7	38	65.7	6.93
Statesville.....	8, 9, 10	84	23, 24	34	59.7	2.25	26, 27	88	7	38	63.8	5.63
Asheville....(A).	8	80	1, 22	41	58.3	3.50	26	83	6	41	62.4	3.50
Do.....(H).	30	78	23	40	58.2	.....	{ 8, 19 20, 28 }	76	6	40	62.1	.....
SOUTH CAROLINA.												
Aiken.....	7, 8	88	22	50	.....	3.57	26	88	7	44	69.4	1.23
Smith's Ford.....	8, 10	84	23	42	65.3	3.46						
Gowdeysville.....							24	87	7	44	70.3	4.55
GEORGIA.												
Berne.....	20, 30	82	5	44	65.5	3.00	3	83	7	54	69.4	1.95
St. Mary's.....	30	87	2, 3, 5	54	69.8	3.00	3	86	7	50	73.4	2.49
Quitman.....	30	87	2	49	69.5	2.80	27	92	7	52	73.7	4.15
Macon.....	30	85	23	48	66.7	5.50	31	92	6	50	72.3	4.65
Atlanta.....	8	85	2	42	63.8	5.06	26, 27, 28	85	6	43	67.9	6.63
ALABAMA.												
Carlowville.....	29	84	1, 2	49	67.9	9.22	31	90	11	50	72.9	6.04
Selma.....	29	84	2	43	67.6	12.50	31	89	7	52	71.9	5.75
Moulton.....	5	80	2, 24	42	64.1	6.96	31	84	7	45	67.6	4.03
Greene Springs.....	6	82	2	39	64.1	13.30	25, 31	87	7	44	68.7	5.80
Coatopa.....	29	84	2	41	65.3	.....	25	90	7	47	69.5	7.10
FLORIDA.												
Near Port Orange.....	13	90	2	50	70.6	1.30	2, 10, 27	89	6	56	74.5	1.63
Jacksonville.....	30	92	2	55	72.3	0.60	24	91	7	55	76.0	3.65
Platka.....	30	94	5	48	71.8	1.38	2	96	7	54	75.1	4.39
Ocala.....	30	91	3	46	70.7	.....	24	92	9	50	63.2	.....
Tampa.....	29	86	5	46	68.5	.....	3, 24	86	7	55	71.0	.....
TEXAS.												
Clarksville.....	29	86	22	46	68.9	.....	30, 31	87	7	56	73.8	.....
Houston.....	27	94	1	43	72.3	.....	14, 28	94	10, 11	58	77.4	.....
Gilmer.....	29	90	22	39	66.7	6.73	30, 31	90	5	50	72.0	7.92
Clear Creek.....	14, 27	90	1	45	69.3	0.62	21	90	11	56	74.7	2.30
Oakland.....	14	99	1	44	70.8	1.90	31	94	4	57	76.7	5.65
Sand Fly.....	14	88	1	37	69.4	1.70	30	91	11	55	77.8	5.40
Bluff.....	14	90	1	42	72.0	1.75	29, 30, 31	90	11	56	76.3	4.75
Victoria.....	29	86	1, 2	52	72.3	0.00	29	89	10	56	73.0	2.10
Clinton.....							17	92	11	55	75.1	3.20
Austin.....	14, 28	87	1	45	68.9	1.30	17, 30, 31	89	10	57	74.3	4.93
LOUISIANA.												
New Orleans.....	28	84	1, 2	51	68.7	2.15	31	87	11	57	71.0	6.00
Ponchatoula.....	29	88	2	48	72.0	3.80	31	90	11	54	75.6	6.50

Table showing the range of the thermometer, &amp;c., for April and May—Continued.

Stations in States and Territories.	APRIL.						MAY.					
	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.
<b>MISSISSIPPI.</b>												
		Deg.		Deg.	Deg.	In.		Deg.		Deg.	Deg.	In.
Marion Station.....							31	94	6	48	69.8	8.60
Philadelphia.....	9	86	1	40	63.5	10.80						
Grenada.....	30	83	2, 22, 23	40	63.7	8.10						
Near Brookhaven.....	9, 30	85	1	40	65.0	5.10	30	89	11	48	68.9	9.80
Holly Springs.....	29	86	22	43	61.0	6.60	31	90	6	43	68.3	7.40
<b>ARKANSAS.</b>												
Helena.....	5	83	12, 22	44	64.7	.....	26, 31	90	6	51	70.0	.....
Clarksville.....	5	88	1	38	61.4	4.80	31	91	5	50	69.6	5.33
Mineral Springs.....	29	88	22	32	61.4	7.19	15, 20	86	5, 11	44	67.7	7.06
Fayetteville.....	29	84	1, 11	32	60.5	7.52	13, 17, 31	86	12	42	68.5	5.17
<b>TENNESSEE.</b>												
Elizabethton.....	8, 10	82	23	32	69.5	5.91						
Tusculum College.....							25	90	6	44	65.5	.....
Knoxville.....	7	79	2	38	59.5	4.71	24, 27	86	6	44	66.0	4.38
Lookout Mount'n.....	6	81	23	43	63.2	.....	27	85	6	43	66.9	.....
Clearmont.....	6	82	2	41	61.8	5.68	24	83	6	43	64.7	4.24
Austin.....	6	82	10	36	61.0	3.86	27, 28, 29	88	7	40	67.7	4.10
Clarksville.....	6	84	23	38	61.7	4.76	25, 26	84	6	45	65.6	4.33
Trenton.....	5	85	23	40	64.3	7.75	31	90	6	44	68.8	3.60
La Grange.....	29	84	1	43	63.1	5.70	{ 15, 25, 26, 31 }	{ 88 }	6, 10	48	68.8	4.20
<b>KENTUCKY.</b>												
Pine Grove.....	7, 8, 10	80	1, 2, 23	36	57.9	2.26	26, 29	88	9, 10	42	65.5	6.85
Danville.....	30	82	1, 22	40	60.6	2.16	27	90	5, 6, 9, 10	46	68.0	6.25
Shelby City.....	6	83	23	37	60.8	1.72	28	90	6	42	67.1	1.37
Near Louisville.....	6	84	23	27	59.8	2.06	26, 27, 28	91	7	34	64.0	5.97
<b>OHIO.</b>												
Salem.....	10	85	1, 2, 15	31	53.3	1.00	29	95	6, 8, 9, 17	40	61.2	1.23
New Lisbon.....	7	81	2	29	52.3	1.53						
Steubenville.....	8	78	2	33	57.0	1.76	29	87	7	45	65.0	4.32
Martin's Ferry.....							29	91	6, 8, 11, 14	40	61.7	.....
Painesville.....	7	80	2, 23	32	51.0	3.05	20, 25, 29	84	8	32	58.5	2.85
Milnersville.....	7	81	24	28	48.0	2.70	25	87	8, 10	32	56.0	4.85
Cleveland.....	7	85	2	30	51.3	2.15	25	89	8	39	58.0	2.02
Adams's Mills.....							25, 29	89	6	44	64.4	3.30
Pennsville.....							26, 28, 29	90	7	40	63.6	2.57
Gallipolis.....	8	84	2	34	59.2	1.48	25, 26, 29	89	7	40	65.0	3.65
Obeflin.....	7	80	1	28	51.6	1.20	29	91	6, 8, 9	38	59.2	1.10
Kelley's Island.....	8	72	1, 2	36	50.2	0.66						
Sandusky.....	7	81	1	36	52.1	2.89	20	86		43	61.6	1.77
Carson.....	7, 8	78	1	36	54.2	1.90	29	88	7, 9	42	62.5	1.10
North Fairfield.....	7	81	1	40	54.3	1.90	25	86	6, 8	42	61.9	1.39
Gambier.....	7	94	2	32	51.6	2.09	29	83	6	42	60.5	2.10
Westerville.....	8	80	1	35	54.3	1.11	29	90	6	41	62.8	2.24
Williamsport.....	8	82	16	34	56.1	3.40						
North Bass Isl'd.....	7, 8	74	1	36	50.3	1.68	31	88	9	44	60.4	2.04
Marion.....	8	78	2	33	53.2	1.72	26	87	6	41	61.1	2.60
Hillsboro'.....	7, 8	75	1	35	54.7	1.32	29	85	10	41	61.6	4.78
Bowling Green.....	7	86	14, 23	33	54.9	3.00	29, 31	94	8	42	64.2	1.80
Kenton.....	8, 19	79	1	40	59.8	4.60	29	94	5, 8, 10	47	65.7	5.00
Bellefontaine.....	7	78	22	33	53.9	2.76	29	92	6	38	62.9	2.86
Urbana Univ.....	7, 8	80	1	34	56.4	2.84	25	91	6	40	64.6	2.00
Bethel.....	7, 8	81	23	32	59.5	2.13	29	91	6, 9	40	64.5	5.63
Carthage.....	9	79	15	36	57.0	4.59	29	89	5	41	64.5	3.03
Jacksonburg.....	8	79	1	36	57.4	2.70	25, 26	88	6, 7	41	65.0	5.50
Oxford.....	7, 18, 19	79	22	31	55.0	1.67	27	95	6	40	65.0	2.77
Mt. Auburn Inst.....	7	80	1	37	59.0	1.39	26, 28, 29	88	6	42	67.1	7.26
Cumminsville.....							28	93	6	41	65.9	.....
Cincinnati (H).....	7	82	1	35	57.7	1.23	28	91	10	41	66.7	4.66
Do (P).....	8, 10	84	23	34	60.4	1.30	27	97	10	42	68.4	5.35
College Hill.....	7	79	23	33	56.9	1.70	28, 29	92	6, 10	40	65.9	4.75

Table showing the range of the thermometer, &amp;c., for April and May—Continued.

Stations in States and Territories.	APRIL.						MAY.					
	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.
MICHIGAN.		Deg.		Deg.	Deg.	In.		Deg.		Deg.	Deg.	In.
Detroit							29, 31	92	9	37	61.6	2.43
Monroe City	7, 8	78	2	38	52.9	3.57	20, 25	90	9	45		
Ann Arbor	7	81	1	35	50.2	2.86	29	88	9	42	61.5	1.84
Macon	7	83	1	31	52.3	2.25	20, 27, 29	91	9	44	64.2	3.10
Alpena	7	50	10	28	38.7	2.85	26	70	8	34	49.5	1.77
State Agr'l Col.	8	87	11, 22	32	49.8	2.97	31	94	8, 9	41	61.4	1.97
Olivet College	2	82	1, 22	32	49.5	3.76	20	91	5	40	61.3	3.59
Litchfield	7	82	1	29	50.3	4.20	29	88	6	41	62.0	3.53
Coldwater	7	81	1	25	49.1	1.60	29	90	10	32	59.2	1.63
Grand Rapids (H)	7	89	1	30	50.3	3.66	31	94	5	38	63.3	1.00
Do (S)	7	85	1	29	49.0	3.39	28	89	5	39	60.3	1.32
Northport	7	66	10	28	41.5	2.75	20	87	4	34	54.6	1.81
Benzonia	7	72	10, 15	30	44.8	3.20	28	86	4	36	54.0	1.60
Copper Falls	6	65	11	14	34.0	2.80	31	83	8	33	52.3	2.10
Ontonagon	26	58	10	26	39.0	2.00	19	84	8, 9, 10	36	54.8	1.60
INDIANA.												
Fort Wayne	7	85	1	31	53.9	1.70	25	94	5	39	64.2	2.40
Aurora	7	84	23	30	58.7	2.01	25, 29	95	5	44	67.4	2.51
Vevay	7, 18	82	23	32	58.8	2.77	25, 26, 27	66	6	44	66.0	3.16
Mt. Carmel	7	82	1, 13	40	58.6	1.40	29	96	6	44	67.9	1.80
Spiceland	7	82	1, 22	34	56.0	1.47	26	94	5	39	65.2	2.58
Laconia	6, 7	84	23	37	60.3	2.10	25, 28	86	6	43	67.3	5.33
Knightstown	7	81	12	32	57.0	1.41	26	92	5, 7	41	65.2	2.56
Indianapolis	7	79	1	36	56.1	1.89	26	88	4	39	65.6	2.37
Bloomington	6	79	22, 23	39	57.0	2.71	23	88	5, 6	41	65.7	1.76
Near La Porte	7	78	11	33	53.2	2.90	26	89	5	37	64.1	3.00
Rensselaer							27, 28	90	5	40	65.6	3.55
Merom	6, 7	82	1	38	60.2	2.55	26	89	5	42	68.8	2.10
New Harmony	6	84	1	42	61.0	1.94	24	89	6	46	68.7	2.95
ILLINOIS.												
Chicago	7	81	11	36	53.6	2.97	30	87	4	39	61.1	3.55
Near Chicago	6	86	1, 11	34	51.9		19, 20	90	4	38	59.0	
Evanston	7, 8	76	11	35	49.4	2.62	20	88	4	36	57.3	2.73
Marengo	7	82	1	28	48.1	2.05	28	88	5	36	61.8	2.07
Charleston	6	83	1	32	56.2	1.41						
Aurora	7	81	11	31	51.2	2.33	27	85	4	36	62.1	4.48
Louisville	5, 6	85	1	34	50.3	0.90	26	95	5	40	72.0	5.90
Belvidere	6, 7	86	11, 12	32	49.6	2.40	28	90	4	36	61.6	2.06
Decatur	6	82	1, 11	34	55.5	0.00	31	90	17	36	64.1	2.35
Pana	6, 7	82	1	34	57.0	0.40	{ 19, 20, 26, 31 }	88	5	41	67.0	1.40
Rochelle	7	82	11	32	51.0							
Wyanet	6	86	1	31	52.2	2.93	15, 31	89	10	37	66.2	2.50
Tiskilwa	6, 7	84	1	30	53.7		31	95	10	38	65.3	
Hennepin (S)	6	87	15	30	55.0							
Do (O)	6	84	1, 11	34	54.2	1.60	31	91	5, 6, 9	40	65.1	2.50
Peoria	6	84	1	33	57.1	2.58	15, 31	91	5	41	67.0	1.93
Havana	6	90	12	34	68.5	2.05	31	98	10, 11	38	65.6	1.00
Waterloo	6	85	21	36	59.8	0.65	31	93	5	41	69.1	1.90
Dubois	7	78	1	35	56.7	1.22	31	94	7	43	66.5	3.76
Galesburg	5, 6	82	11	33	54.6	2.64	30	88	5	40	65.6	2.72
Manchester	5	90	11, 22	36	58.7	0.95	28	90	1	38	66.8	2.48
Mt. Sterling	6	84	11	37	61.0	1.20	31	91	4	46	69.0	0.95
Andalusia	7, 26	79	11	32	54.5		27	89	6	36	64.6	
Ogawka	6	87	11	36	57.9	2.78	31	93	5	42	68.8	1.34
Angusta	7	87	11	35	58.1	3.05	31	88	4	41	66.9	2.25
Warsaw	6	86	11	32	57.1	2.81	31	90	5	41	66.3	3.48
WISCONSIN.												
Sturgeon Bay	8	61	10	28	41.7	3.35	29	84	3, 4	34	55.1	2.90
Manitowoc	7	71	10	30	44.7	2.95	31	80	4	35	54.6	2.09
Hingham	7	86	14	28	47.5		28	86	9	33	58.7	
Milwaukee	7	84	1	30	46.4	3.20	20	90	4, 5	35	56.2	2.24
Appleton	7	76	10	32	47.4				4	38	56.2	
Geneva	6, 7	84	1, 14	31	48.5	3.07	28	92	4	33	60.4	2.65



Table showing the range of the thermometer, &amp;c., for April and May—Continued.

Stations in States and Territories.	APRIL.						MAY.					
	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.
WISCONSIN—CON.												
Waupaca .....	7	Deg. 83	10	Deg. 29	Deg. 47.4	In. { 19, 28, 29, 30, 31 }	Deg. 90	3, 4	Deg. 37	Deg. 62.1	In. ....	
Embarrass .....	7	83	10	27	45.8	3.87	28	92	3, 5, 7	36	60.5	2.04
Rocky Run .....	7	86	10	32	49.0	3.81	31	90	4	38	61.5	4.75
Madison Univ. ....	7	82	10, 11	33	48.7	2.00	31	86	4, 5	38	61.2	3.11
Edgerton .....	7	86	11	32	51.2	3.70	31	96	4, 5	40	64.5	4.20
Mosinee .....	7	77	10	24	41.9	12.16	.....	.....	.....	.....	.....	12.25
Baraboo .....	6, 7	84	10	30	50.0	2.42	31	90	5	36	63.5	.....
New Lisbon .....	7	86	11	30	49.3	.....	{ 27, 29, 30, 31 }	94	3	38	63.9	.....
Bayfield .....	6	60	10	24	36.9	.....	.....	.....	.....	.....	.....	.....
MINNESOTA.												
St. Paul .....	6	80	10	28	48.5	4.11	19, 31	92	3	40	65.2	2.79
Minneapolis .....	6, 7	76	10	25	45.5	5.00	31	91	3, 5	38	63.2	3.12
Koniska .....	7	83	10	25	42.2	4.95	12	90	3, 10	38	57.4	2.40
Sibley .....	7	79	9	24	46.2	1.69	31	90	5	36	63.0	3.24
Litchfield .....	6	80	10	24	45.0	3.60	31	88	3, 4, 5	40	61.8	1.60
New Ulm .....	7	85	10	25	48.6	2.59	19, 31	92	3	39	65.1	1.39
IOWA.												
Clinton .....	6	94	11, 20	30	50.0	4.75	.....	.....	.....	.....	.....	.....
Dubuque .....	6, 7	83	11	32	52.0	2.28	31	89	4, 5, 9	40	65.0	1.87
Monticello .....	6	88	{ 9, 10, 11, 22 }	30	51.1	3.00	31	98	5	38	64.8	1.90
Durant .....	6	88	11	30	53.4	1.35	31	97	4	36	64.5	1.40
Bowen's Prairie ..	6	88	22	28	53.3	.....	31	98	5, 6	34	64.1	1.55
Fort Madison .....	5, 6	81	22	31	55.8	2.41	31	93	10	34	65.8	.....
Guttenberg .....	7	84	1, 9	28	49.5	.....	31	94	4, 5	39	62.7	2.51
Mount Vernon .....	6	87	11	30	51.7	.....	31	94	5	37	63.8	.....
Iowa City .....	.....	.....	.....	31	95	6	33	65.9	.....	.....	.....	2.00
Independence .....	6	83	11	29	51.1	1.20	31	95	5	37	65.6	3.15
Near Independence	6, 7	85	11	29	51.2	2.40	31	90	5	35	65.6	5.40
West Union .....	6	88	9	26	51.1	1.85	31	91	5	38	65.4	3.72
Rockford .....	5	81	11	33	51.5	.....	31	86	6	36	63.5	.....
Iowa Falls .....	6	82	9, 11, 12	28	53.3	3.90	31	87	6	33	66.4	3.87
Algona .....	6	88	10	24	49.3	.....	31	94	4	38	64.9	.....
Fontanelle .....	6	85	10	29	53.5	5.00	31	92	5	41	65.8	1.50
Grant City .....	6	93	9, 10, 11	28	52.2	3.00	31	95	5	38	66.9	1.28
Sac City .....	5	91	11	26	50.1	5.30	31	90	4, 5	38	53.1	3.10
Logan .....	5	94	9, 10, 22	27	51.1	2.70	19	85	5	33	63.4	1.60
Council Bluffs ..	6	93	11, 19	34	56.0	2.04	19	84	4	40	64.7	2.18
MISSOURI.												
St. Louis Univ. ....	5, 6	86	11	40	61.7	0.30	31	91	4, 5	46	69.3	3.45
Allenton .....	6	93	1	34	59.7	1.00	31	97	7	41	66.3	4.35
Hematite .....	6	90	23	35	62.0	0.77	31	97	5	45	69.1	4.58
Hannibal .....	6	86	11	36	58.9	3.00	31	89	5	42	66.7	4.60
Rolla .....	6	89	22, 23	30	58.5	1.53	31	92	7	36	64.6	4.52
Keytesville .....	7	86	10, 11	34	59.5	.....	31	92	4	48	70.2	1.00
Jefferson City .....	6	84	1	33	58.3	.....	31	91	10	44	68.0	.....
North Springfield.	6, 7	88	22	32	58.9	3.13	31	84	5, 10	45	65.3	5.12
Kansas City .....	6	89	1	30	55.7	3.10	14, 31	90	2	36	63.1	2.25
Oregon .....	6	94	10	27	56.6	2.14	31	87	4, 10	43	65.0	2.13
Corning .....	5	86	11	32	56.9	0.45	16, 20, 31	88	5	34	64.2	1.25
KANSAS.												
Atchison .....	6	94	10, 11	32	56.9	1.70	31	92	5	45	66.8	4.10
Williamstown (C) ..	6	94	11	31	58.8	1.88	17, 31	96	5	36	68.9	3.43
Leavenworth .....	6	92	10, 20	33	57.4	2.80	31	90	6	38	65.9	5.03
Williamsburg .....	6	91	11	32	57.3	.....	14	94	5	40	64.7	2.50
Paola .....	6	90	11	34	59.3	2.55	31	88	5	45	66.3	3.83



Table showing the range of the thermometer, &amp;c., for April and May—Continued.

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KANSAS—Cont'd.		Deg.		Deg.	Deg.	In.		Deg.		Deg.	Deg.	In.
Baxter Springs ..	17	86	1	34	60.0	2.40	{17, 18, } 19, 30	88	5	44	68.6	3.80
Lawrence .....	6	91	10	33	57.9	2.38	31	91	6	44	66.7	2.79
Holton .....	6	95	10	31	59.5	2.00	18, 31	92	4	45	69.3	2.75
Le Roy .....	6	91	11	32	56.9	4.23	11	92	6	48	70.2	3.42
Burlington ..	6	88	22	35	52.4	5.10	31	85	5	44	65.7	3.20
State Ag'l College	6	91	11	32	60.0	3.00	19	88	5	45	67.2	5.07
Council Grove ..	6	94	21	34	58.0	4.45	14, 16, 17	90	5	45	66.5	6.90
Douglass .....	6	90	10	36	60.3	4.20	14	88	5	46	66.9	4.70
Plum Grove ..	18	79	21	33	54.4	1.30	12	96	4	41	65.5	3.10
Burlingame .....	6	90	11	30	59.5	.....	14	92	5	37	64.0	.....
NEBRASKA.												
Omaha agency ...	5	92	11	24	53.6	2.98	19, 31	89	4	42	66.7	3.07
De Soto .....	6	95	10	26	54.3	3.13	14, 19, 30	88	4	41	65.9	1.13
Bellevue .....	6	96	10	31	56.3	1.80	19	90	4	44	66.8	2.40
Nebraska City ...	6	95	10	27	56.0	1.64	14, 19	89	4	42	65.8	2.11
Newcastle .....	4	95	10	9	.....	.....	.....	.....	.....	.....	.....	.....
Santee Agency ..	6	90	11	24	51.4	.....	15, 31	90	4, 5	42	66.9	2.50
UTAH.												
Coalville .....	3, 5, 23	70	11	27	46.2	.....	26, 27	85	24	40	57.2	.....
CALIFORNIA.												
Monterey .....	5	76	1	40	54.3	0.65	22	75	9, 11	40	41.2	9.46
Watsonville .....	.....	.....	.....	.....	.....	.....	2	84	7	40	57.7	0.50
Taylorsville .....	23	73	9	30	52.0	.....	2	82	18	39	57.3	.....
San Diego .....	4, 25	76	8	46	58.8	0.85	24	75	19	56	63.4	0.14
MONTANA.												
Deer Lodge City.	5	72	8, 9	25	39.6	1.32	27	87	12	29	53.1	2.29
Missoula .....	5	68	16	23	43.7	1.37	26	89	2	34	59.5	0.85
Virginia City .....	4	69	13	19	.....	.....	.....	.....	.....	.....	.....	.....
WASHINGTON.												
Cathlamet .....	.....	.....	.....	.....	.....	.....	4, 20	65	4, 11	40	51.9	.....
COLORADO.												
Denver City .....	.....	.....	.....	.....	.....	.....	28	86	2	42	65.2	2.56
Golden City .....	29	80	9	44	64.7	2.80	.....	.....	.....	.....	.....	.....
OREGON.												
Eola .....	24	68	15	34	47.0	2.84	1, 6, 26	62	12	34	50.3	4.95
Astoria .....	23	60	16	37	46.7	4.19	20	59	11	42	49.5	6.91
WYOMING.												
Laramie City .....	28	73	9	10	40.4	.....	5, 26	82	1	32	55.7	0.35

## NOTES OF THE WEATHER.

APRIL, 1871.

*Houlton, Me.*—Aurora 1st; snow, a foot, 11th; frost gone, spring birds, 17th.

*Williamsburg, Me.*—First thunder shower 7th; robins 8th; auroras 14th, 18th.

*West Waterville, Me.*—Frogs 6th; month  $1^{\circ}.32$  warmer than average for seven years.

*Standish, Me.*—Bees out 3d; swallows 13th; spring two or three weeks early.

*Norway, Me.*—Frogs 3d; thunder shower 22d; rain on fourteen days.

*Cornishville, Me.*—Thunder and lightning 11th; average April heat for forty years  $39^{\circ}.25$ ; this year  $44^{\circ}.41$ . The last three months have been very mild.

*Stratford, N. H.*—Robins 3d; frogs 19th; month cold and cloudy.

*Whitefield, N. H.*—Flowers 5th; frogs 8th; auroras 10th, 14th, 17th, 18th.

*Mount Washington, N. H.*—Thunder snow-storm 11th; snow, three days, to 13th.

*Tamworth, N. H.*—Plowing 4th; brilliant aurora 17th; flowers 20th.

*Contocookville, N. H.*—Month  $3^{\circ}.5$  above average; rain on seventeen days.

*Amoskeag, N. H.*—Aurora 17th; a wet but forward April.

*Craftsbury, Vt.*—Frogs 7th; butterflies 8th; first thunder 21st.

*Troy, Vt.*—Auroras, bright crimson, 9th, 13th, 18th; diffused 14th.

*Woodstock, Vt.*—Frogs 7th; first thunder-storm 11th; auroras 17th, 18th.

*Kingston, Mass.*—Brilliant auroras 17th, 18th; peach blossoms 19th.

*New Bedford, Mass.*—White magnolia opening 9th, purple 10th; dandelion 24th; peach and cherry full bloom 25th.

*Lunenburg, Mass.*—Month very dry; vegetation a fortnight early.

*Williamstown, Mass.*—Auroras 13th, 14th, 16th, 17th; shade tree blossoms 26th.

*Hinsdale, Mass.*—Snow 2d, with rain 3d; thunder-showers 20th.

*Newport, R. I.*—Brilliant aurora 17th; thunder-showers 20th, 28th.

*Middletown, Conn.*—Hot April day 8th; thunder-storms 11th, 21st, 28th, 29th; auroras brilliant 13th, faint 16th, 17th; frost and ice 18th.

*Southington, Conn.*—Swallows, barn 20th, bank 26th; whippowil, 30th.

*Moriches, N. Y.*—Auroras 9th, 10th, 16th, 17th, 18th, 23d, 24th; peach blossoms 25th; whippowil 30th. Month rather cold; severe frost on 25th.

*South Hartford, N. Y.*—Toads 4th; auroras 14th, 17th; lake and canal open 17th.

*Garrisons, N. Y.*—Month damp and cloudy, but not much rain.

*Brooklyn, N. Y.*—An early spring and "good growing weather."

*North Hammond, N. Y.*—Splendid aurora 9th; martins 23d; early season.

*Cazenovia, N. Y.*—Fine aurora 17th; four thunder-showers, three frosts.

*Depauville, N. Y.*—Fine farming weather except the rainy last week.

*Palermo, N. Y.*—First thunder-storm 7th; swallows 21st; daffodils 25th.

*Nichols, N. Y.*—Cherries in full bloom 30th; driest March and April known here.

*Newark Valley, N. Y.*—A mild month; crops all in except corn.

*Little Genesee, N. Y.*—Month fine for farm-work; no snow; little rain.

*Buffalo, N. Y.*—Lake open 3d, canal 24th; month 3°·2 warmer than average.

*Jersey City, N. J.*—Snow 1st, 2d; auroras 5th, 9th, 13th, 17th, 19th.

*South Orange, N. J.*—Cherry blossoms 16th, peach 17th, pear 21st, apple 29th.

*Moorestown, N. J.*—Month dry, springs low; six frosts, did little injury.

*New Germantown, N. J.*—Thunder-storm and hail 11th; corn planting 30th.

*Greenwich, N. J.*—Peach blossoms 3d, apples 9th; roads dusty 25th.

*Dyberry, Pa.*—Hottest April day known here 9th; cold rain 27th, 28th.

*Fallsington, Pa.*—Rain 1st, with snow 2d; auroras 9th, 13th, 17th, 18th.

*Horsham, Pa.*—Month dry; vegetation suffering; fine for farm work.

*Plymouth Meeting, Pa.*—Warmest April on record, and driest till 27th.

*Egypt, Pa.*—Swallows 22d; plums full blown 25th, peaches 27th, cherries 30th.

*Factoryville, Pa.*—Pleasant April, warm, with frequent slight rains.

*Reading, Pa.*—First martins 3d—in 1869, March 26; in 1870, April 9.

*Carlisle, Pa.*—Trailing arbutus 8th; corn planting 24th.

*York Springs, Pa.*—Drought ended and corn generally planted 30th.

*Fountain Dale, Pa.*—Month fine; no frost; ten days earlier than in 1870.

*Tioga, Pa.*—Frogs 7th; swallows 25th; plum and peach in bloom 30th.

*Grampian Hills, Pa.*—Month dry till 19th, and cool after 10th.

*Johnstown, Pa.*—Peach full bloom 9th; cherry 23d; sugar maple 30th.

*Brownsville, Pa.*—Dry month till 18th; river lower than in twenty-seven Aprils.

*Connellsville, Pa.*—Frosts 14th, 15th, killing some fruits in blossom.

*Newcastle, Pa.*—Month 4° above April average of ten years.

*Beaver, Pa.*—Dry; streams low; fruit nearly all killed by frost of 16th.

*Canonsburg, Pa.*—Dandelions 4th; martins 6th; auroras 9th, 13th.

*Milford, Del.*—Month dry; strawberries suffering from drought.

*Woodlawn, Md.*—Cowslips 7th; auroras 9th, 13th, 15th, 16th, 17th, 18th, 19th, 22d; dandelions 10th; dogwood 14th; fire-flies 19th; whip-powil 21st.

*Emmitsburg, Md.*—Warmest April in several years.

*Johnsontown, Va.*—Lilacs 3d, white clover 11th, red clover 17th, dog-wood 22d.

*Hampton, Va.*—Month 6° above April, 1870; no ice and no frost.

*Surry Court-House, Va.*—Martins 2d; white aurora 9th.

*Comorn, Va.*—Month mild, spring early, frosts slight, rains light.

*Fairfax Court-House, Va.*—Aurora 11th; frost injured fruit 15th; drought ended 30th.

*Accotink, Va.*—Month warm, dry, smoky, with much thunder; spring two to four weeks early; rye in head by 20th, wheat by 30th.

*Piedmont, Va.*—Peach blossoms 9th; severe frost 13th, with ice 24th.

*Wytheville, Va.*—Apple blossoms 7th, dogwood 8th; hail-storms 28th, 30th.

*Oxford, N. C.*—Earthquake at 9 p. m. 18th, rattled doors and windows.

*Atlanta, Ga.*—Much thunder and lightning 15th, 20th, 27th, 28th, 30th.



- Moulton, Ala.*—April wet and damp, advanced like May.  
*Selma, Ala.*—Every rain was with thunder and much wind.  
*Coatupa, Ala.*—Whippowil 2d. Thunder and lightning on thirteen days.  
*Jacksonville, Fla.*—Month 2°·59 above average, and very dry.  
*Ocala, Fla.*—Frost killed tender plants 4th; great thunder-storm 15th.  
*Clarksville, Texas.*—Heavy thunder-storms 10th, 13th, 15th; frost 21st.  
*Oakland, Texas.*—Best season in several years; cotton "forms" 27th.  
*Bluff, Texas.*—Last frost 1st; thunder-storm with hail 26th.  
*Victoria, Texas.*—Ripe dewberries 13th. Very dry month.  
*Ponchatoula, La.*—Ripe blackberries 26th; thunder and hail-storm 27th.  
*Grenada, Miss.*—Heavy rain and hail storms 27th, 30th.  
*Brookhaven, Miss.*—Fire-flies 4th; "bob-white" 18th; frosts 22d, 23d.  
*Tennessee.*—Sharp frosts about 23d at various stations, injuring some fruits and vegetables, and wheat in bloom in one section.  
*Trenton, Tenn.*—Spring forward but wet, delaying planting.  
*Pine Grove, Ky.*—Frost, ice, killing all tender fruits, &c., and much wheat, 23d. Dry till 25th; several damaging wind-storms in April.  
*Shelby City, Ky.*—Aurora 9th; killing frost 23d. Month 4° above average of ten years, and rain 2.70 inches less than average of same period.  
*New Lisbon, Ohio.*—Frost and ice 16th—killed peaches and cherries, not apples.  
*Salem, Ohio.*—Frost, ground frozen 2d; auroras, fine 9th, 13th.  
*Cleveland, Ohio.*—Cherry blossoms 7th, peach 12th; auroras 9th, 13th.  
*Sandusky, Ohio.*—Auroras 1st, 9th, 13th; apricots blossom 7th, (24th in 1870.)  
*Carson, Ohio.*—Peach blossoms 9th; frosts 13th, 14th, 15th, 22d.  
*North Fairfield, Ohio.*—Peach blossoms 10th, pear 19th, apple 28th; ice 16th.  
*Westerville, Ohio.*—Severe frosts 2d, ice 14th, 15th, 16th, 23d, 24th.  
*North Bass Island, Ohio.*—Peach blossoms 27th; auroras 9th, 13th, 29th.  
*Hillsboro, Ohio.*—Spring two weeks early; some fruit killed by frost 23d.  
*Kenton, Ohio.*—Martins 4th; frost, ice 16th, 23d—some fruit killed.  
*Urbana, Ohio.*—Month 4° above average, but fruit much injured by frost 23d.  
*Cincinnati, Ohio.*—Auroras 1st, 9th, 14th; light frosts 23d, 24th. Month dry.  
*Ann Arbor, Mich.*—Frogs 4th; auroras 9th, 13th, 17th; peach full bloom 30th.  
*Litchfield, Mich.*—Season a fortnight earlier than last year.  
*Northport, Mich.*—Frogs 3d; Phebe-birds 8th; daffodils 26th.  
*Copper Falls, Mich.*—A stormy, unpleasant, backward April.  
*Ontonagon, Mich.*—Robins 15th; frogs 20th; plowing 24th.  
*Fort Wayne, Ind.*—Auroras 1st, 9th, 13th, 15th; frost, ice 16th.  
*Veray, Ind.*—Peach blossoms 2d, cherry 5th, lilac 8th; sharp frost 23d.  
*Laconia, Ind.*—Apple blossoms 4th; auroras 9th, 13th, 17th; killing frost 23d.  
*Knightstown, Ind.*—Dry month; early season; killing frost 11th.  
*Merom, Ind.*—Peach blossoms 4th; martins 5th; frost, ice 23d.  
*Aurora, Ill.*—Most favorable April for farmers in ten years.  
*Louisville, Ill.*—Apple blossoms 9th; sharp frost 23d. Dry month.

- Belvidere, Ill.*—Warm to 8th, rest moderate; ground in good order.  
*Hennepin, Ill.*—Light rains, no killing frosts; windy after 10th.  
*Dubois, Ill.*—Peach blossoms 2d, apples 10th. Month very dry.  
*Andalusia, Ill.*—Season favorable and forward, frosts slight.  
*Oquawka, Ill.*—Martins 3d; cherry blossoms 20th; ice 11th, 22d; windy month; on 8th drifts of sand on the railroad 18 inches high.  
*Manitowoc, Wis.*—Auroras, red, white, blue, and green 9th, red and white 13th; thunder-storms 19th, 27th. Lowest barometer on record.  
*Hingham, Wis.*—Plowing 5th; sowed wheat 14th; very wet after 15th.  
*Milwaukee, Wis.*—Snow 11th, 16th; storm, lightning 19th; ice 22d.  
*Waupaca, Wis.*—Ice out of lake 2d; hurricane, almost, 8th.  
*Embarrass, Wis.*—Frogs 1st; hail 12th, 19th; ice 14th, 15th.  
*Mosinee, Wis.*—Season late, soil wet, little oats or wheat sowed yet.  
*Baraboo, Wis.*—Warmest April on record; May flowers on 15th to 25th.  
*Bayfield, Wis.*—Thunder-storms; clearing ice out of the bay 7th to 10th.  
*St. Paul, Minn.*—Month cloudy and stormy, seven days' rain, three of snow, (6 inches.)  
*Minneapolis, Minn.*—Snow 7 inches 10th, 11th. A warm April.  
*Sibley, Minn.*—Frogs 5th; heaviest snow this year 10th; hail 18th.  
*Koniska, Minn.*—Windy, frequent thunder; waters very low.  
*Litchfield, Minn.*—Pleasant to 8th, rest disagreeable and cool.  
*Clinton, Iowa.*—Frogs 1st; flowers 2d; martins 3d; hard frost 27th.  
*Monticello, Iowa.*—Frogs; black birds 2d. No rain worth mention.  
*Durant, Iowa.*—Hard frost 30th; vegetation advanced; ground dry.  
*Fort Madison, Iowa.*—Peach blossoms 9th, apple 15th; ice 11th, 12th, 13th.  
*Guttenberg, Iowa.*—A fine month for farmers and their stock.  
*Independence, Iowa.*—Thunder-storms 2d, 26th; severe gale 8th; ground froze 11th; auroras 11th, 13th; martins 17th; ice 22d; peach blossoms 28th.  
*Iowa Falls, Iowa.*—Terrible gale 8th; ground frozen hard 22d.  
*Algona, Iowa.*—Snow, (6 inches,) sleet and rain 10th; rain with snow 19th to 21st.  
*Fontanelle, Iowa.*—High winds 2d, 8th; ice 9th, 11th, 12th, 21st, 22d.  
*Council Bluffs, Iowa.*—High winds 2d, 5th, to 8th; ground froze hard 11th.  
*St. Louis, Mo.*—Very high winds 2d, 18th, 19th, 20th; thunder-storms 19th, 20th.  
*Allenton, Mo.*—Heavy frosts 12th, 22d, 23d; the last killed much fruit.  
*Hematite, Mo.*—Dryest spring in many years, ground baked hard.  
*Rolla, Mo.*—Month about 5° warmer than in 1869 and 1870.  
*Oregon, Mo.*—Great storms 8th, 10th, 18th to 20th; ice half an inch 11th; corn planting 17th; rye heading 29th. Cold injured some fruits.  
*Atchison, Kans.*—Frost, ice 11th; aurora 18th; changeable and windy.  
*Williamstown, Kans.*—Peach blossoms 1st, apples 7th; rye heads 28th.  
*Paola, Kans.*—Terrific thunder-storm 10th; month windy in hard gusts.  
*Baxter Springs, Kans.*—Frost 22d, ruined and damaged fruits.  
*Lawrence, Kans.*—Month 5°·92 warmer than mean of three Aprils.  
*Burlingame, Kans.*—Severest wind-storms known here 7th, 8th, 10th, 17th, 18th; damaging tender vegetation, and some fruits.  
*Omaha Agency, Nebr.*—Severe drifting snow-storms 10th, 19th, 20th.  
*Bellevue, Nebr.*—Aurora 17th. A cloudy windy month.

*Nebraska City, Nebr.*—High winds 2d, 10th, 18th; hard frosts 11th, 22d.

*Dakota City, Nebr.*—Dry, windy 1st to 9th, 12th to 16th; snow 6 inches, 10th to 16th.

*Santee Agency, Nebr.*—More rain fell on 10th and 14th than in a year before.

*Harrisburg, Utah.*—Cold month; grasshoppers at work in places.

*Taylor'sville, Cal.*—Snow 6 inches 7th, snow, rain, hail; sunshine 14th to 17th.

*Monterey, Cal.*—Earthquakes, two shocks at 8 p. m. 2d, one at 2.30 p. m. 4th.

*Virginia City, Mont. Ter.*—Auroras 9th, 10th, 13th, 15th, 17th, 18th.

*Deer Lodge City, Mont. Ter.*—Month cold as winter, season backward.

*Missoula, Mont. Ter.*—Coldest April known, six heavy frosts, some ice.

*Denver, Col.*—Thunder snow storm 8th; severe winds 2d, 8th; aurora 17th.

*Port Angelos, Wy. T.*—Cloudy month, no gales, aurora 24th.

*Laramie, Wy. Ter.*—Severest wind known here 18th, 19th. A boisterous, rough month.

## MAY, 1871.

*St. John, N. B.*—Coldest May in eleven years. Mean temperature  $44^{\circ}$ . Faint auroras 8th, 13th, 18th. Swallows, 12th.

*West Waterville, Me.*—Swallows and bobolinks 16th. First blossoms of plum and cherry 20th; of apple, 25th.

*Gardiner, Me.*—Auroras 8th, 10th, 11th, 14th, 18th, 19th, 21st, 26th.

*Stratford, N. H.*—Barn swallows 2d; hard freeze 11th.

*Whitefield, N. H.*—Strawberry blossoms 9th; aurora 12th.

*Contocookville, N. H.*—Sugar maples in blossom 3d; auroras 13th, 14th.

*Craftsbury, Vt.*—Swallows 6th; auroras 8th, 9th, 10th, 11th, 12th, 14th. Mean temperature of the month  $.08^{\circ}$  above that of the last five Mays.

*Castleton, Vt.*—Dandelion blossoms 1st, strawberry 2d, apple 20th.

*Kingston, Mass.*—May has been very hot and dry, closing with a severe drought. Not moisture enough to make seeds vegetate. Pastures very dry and bare.

*New Bedford, Mass.*—Pear blossoms 9th; hoar frost 11th.

*Lunenburg, Mass.*—Cherry blossoms 1st, pear 15th, apple 20th; the average time of the latter for seventy-four years being May 21st.

*Williams College, Mass.*—Apples in full bloom 24th.

*Middletown, Ct.*—Faint auroras 8th, 9th, 19th. Ice formed 9th, 11th. Thunder-storm 22d. Mean temperature of first ten days of May lower than for ten years past; of the last eleven days the highest for thirteen years.

*South Hartford, N. Y.*—Chimney swallows 11th. Thunder 22d and 30th.

*Garrison's, N. Y.*—Ice 9th, 10th, 11th. Heavy thunder-storm, from southwest, 16th.

*Glasco, N. Y.*—Auroras 8th, 10th. Heavy shower, with hail of size of robins' eggs, doing much damage to grain, fruit, &c., 28th. Heavy wind from south, tearing up trees, with heavy showers, 30th.

*Cooperstown, N. Y.*—First part of the month cool and wet, the latter part hot and dry.

*Depauville, N. Y.*—Wild plum blossoms 10th. Auroras 10th, 12th, 13th, 17th, 19th.



*Buffalo, N. Y.*—Cherry and plum blossoms 3d; apple 20th.

*New Germantown, N. J.*—A favorable month for farmers. Auroras, faint, 7th, 8th, 10th, 25th.

*Vineland, N. J.*—The month drier than usual. Hay and strawberries suffer from drought.

*Greenwich, N. J.*—Wheat in head 12th; strawberries ripening 14th.

*Brownsville, Pa.*—Flood in the Monongahela, 22 feet in the channel, 7th. As a whole the month has been dry.

*Grampian Hills, Pa.*—Peach, pear, and cherry blossoms 1st; wild plum and apple 6th.

*Horsham, Pa.*—The month has been exhaustingly dry.

*Hazleton, Pa.*—Heavy thunder-storm from the west, with short, forked, and exceedingly vivid lightning, 6 to 7 p. m. 16th.

*West Chester, Pa.*—Rye in head 1st. Auroras 1st, 25th.

*Plymouth Meeting, Pa.*—Hard frosts, with ice, 8th, 11th, 14th. This spring the warmest in eighty-one years.

*Dyberry, Pa.*—The first half of the month cold and backward, the last warm and dry.

*Beaver, Pa.*—The month has been cold, dry, and frosty.

*Philadelphia, Pa.*—The warmest May since 1864; and the warmest spring known for twenty years.

*Woodlawn, Md.*—Humming-bird and king-bird 5th. Auroras 8th, 19th. The rain-fall of April and May has been very small, and the hay crop will be quite short.

*Accotink, Va.*—Very little rain since the 5th, but some heavy thunder-showers near by.

*Caperville, Va.*—Heavy thunder-storms 15th, 17th, 22d. A very dry month, and all crops suffering. The season three weeks earlier than usual; wheat ready for harvest.

*Johnsontown, Va.*—Dewberries ripe, fifteen days earlier than usual.

*Albemarle, N. C.*—Thunder on the 1st, 2d, 3d, 4th, 5th, 17th, 24th, 30th, 31st. On the 3d, 4th, and 5th a succession of thunder-clouds from southwest, with occasional vivid lightning, various neighboring points being struck; also intermittent rains in large quantity.

*Smith's Ford, S. C.*—A favorable month for farming operations.

*Quitman, Ga.*—Thunder-showers 4th, 10th, 11th, 18th, 28th; that on the 18th accompanied by some hail.

*Houlton, Ala.*—The first part of the month cloudy and rainy. No frost during the month, and little thunder.

*Austin, Tex.*—Thunder and lightning 1st, 8th, 9th, 15th, 16th, 19th, 20th, 24th; severest storm of season being on the 24th.

*Oakland, Tex.*—Corn tasseling 6th; cotton in bloom 22d.

*Ponchatoula, La.*—Thunder-storm, continuing throughout night of the 3d. Much thunder on 14th.

*Near Brookhaven, Miss.*—Heavy rain-storms with hail from southwest; the hail-stones three-fourths of an inch in diameter 1st and 2d. Heavy thunder-showers, with vivid lightning, 9th.

*Shelby City, Ky.*—The month a dry one for the garden, notwithstanding heavy rains on the 3d and 9th.

*Salem, Ohio.*—The month was marked by numerous frosts and dry weather. Wheat and corn doing well.

*North Fairfield, Ohio.*—Apple trees in full bloom 3d. Hard frosts 9th, 10th, 18th. A dry month.

*Bowling Green, Ohio.*—Rye in head 18th; wheat 27th.

*Kenton, Ohio.*—Frosts every morning from 6th to 11th, completing ruin of early fruit.

*Bethel, Ohio.*—On the 30th a heavy rain with thunder relieved a severe drought.

*Urbana, Ohio.*—The mean temperature of May 32.28 above the average for nineteen years. Vegetation two weeks earlier than usual.

*Mount Auburn, Ohio.*—On p. m. of 30th the first severe thunder-storm of the season, the rain falling in torrents and doing much damage. Some small hail fell.

*Ann Arbor, Mich.*—Apple trees in bloom 8th. Auroras 25th, 26th.

*Monroe, Mich.*—Violent storm of rain, hail, wind and thunder, p. m. of 16th.

*Merom, Ind.*—Locust trees in bloom 1st. Wheat beginning to blossom 25th.

*Marengo, Ill.*—Thunder-showers 2d, 24th, 27th. Apple blossoms 11th.

*Tiskilwa, Ill.*—A fine month; all crops looking extremely well.

*Dubois, Ill.*—First appearance of the bobolink 4th.

*Manitowoc, Wis.*—Auroras 8th, 19th, 21st, 22d, 26th. Thunder-storms 20th, 25th.

*Mosinee, Wis.*—First heavy dew 12th. Whirlwind  $2\frac{1}{2}$  p. m. 14th.

*Baraboo, Wis.*—The last days of May were warmer than ever before known here.

*St. Paul, Minn.*—The mean temperature of May ranges higher than in any of the twelve preceding years.

*Minneapolis, Minn.*—The warmest May on record.

*Litchfield, Minn.*—Sand swallows in large numbers 5th. Strawberry blossoms 9th.

*Durant, Iowa.*—Barley heading out 31st. At close of May the ground is very dry, but all crops at least two weeks earlier than usual.

*Independence, Iowa.*—Burr oaks in blossom 2d; dandelions 8th.

*Algona, Iowa.*—Thunder-showers 15th, 20th, 24th. Crops of all kinds looking unusually well.

*Grant City, Iowa.*—Thunder on 16th, 20th, 24th. First auroras 22d, 23d.

*Hannibal, Mo.*—At 4 p. m. 24th commenced a heavy thunder-storm from south-southeast; and at 4:50 a violent hail-storm, lasting five minutes, and destroying two-thirds of the fruit. The hail was of large size.

*Oregon, Mo.*—Fall wheat heading out and locust blossoms 5th.

*Corning, Mo.*—A large number of meteors evening of 22d.

*Williamstown, Kans.*—Strawberries ripening 3d.

*Burlington, Kans.*—Very heavy storm from the west 1st.

*Lawrence, Kans.*—Severe thunder-storm 8th. A fine month.

*Douglas, Kans.*—At 11 p. m. 30th a gale—thunder, rain and hail—destructive, but of very short duration.

*Nebraska City, Nebr.*—The last half of the month dry and hot.

*Watsonville, Cal.*—The month unusually cold. Much frost and high winds.

*Deer Lodge City, Mont. Ter.*—Ice 12th, 13th. Gale lasting all day, with remarkable fall of the barometer 27th. Coldest May ever known here.

*Laramie City, Wy. Ter.*—Unusually calm weather during the month.





